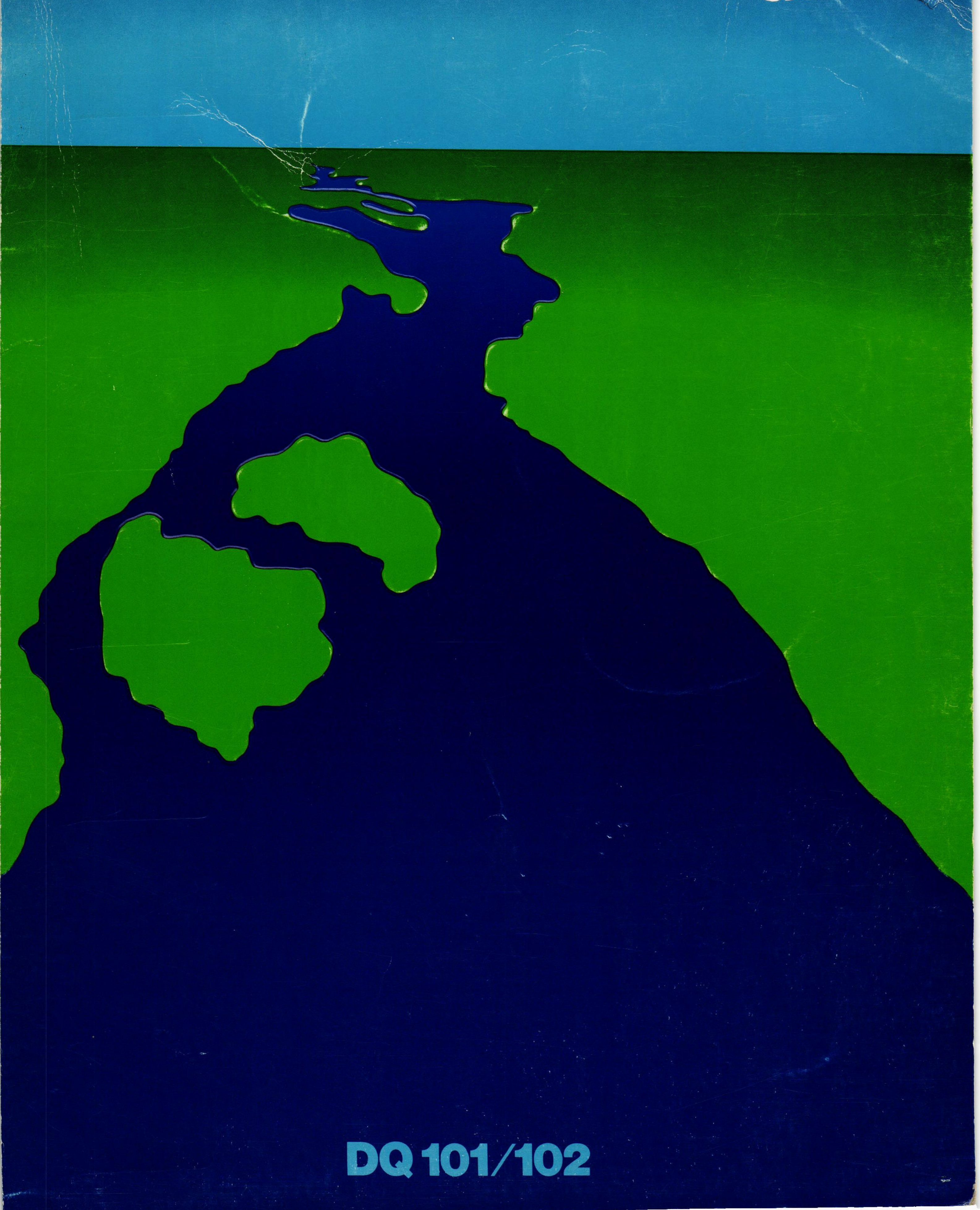
THE RIVER: IMAGES OF THE MISSISSIPPI



DQ 101/102

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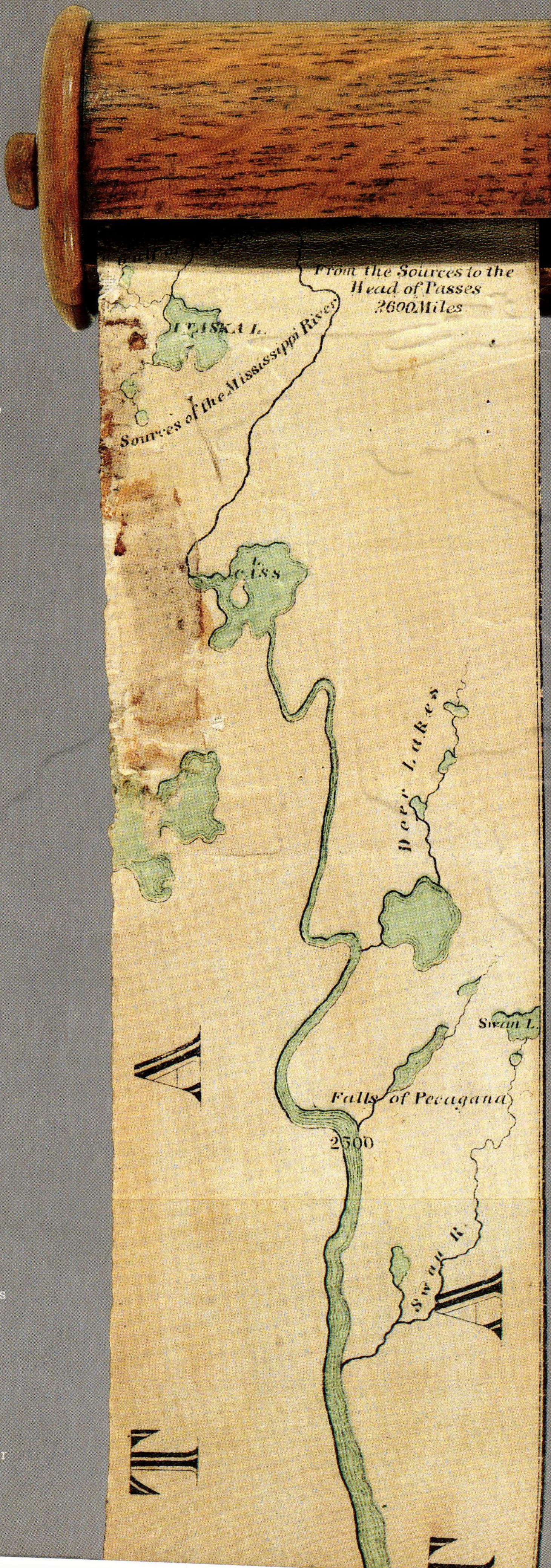
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Head of Passes
2600 Miles
ITASKA L.
Sources of the Mississippi River
L.
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Deer Lakes
Swan L.
Falls of Pecagana
2500
Swan R.

Ribbon Map (St. Louis 1866)
Colony and Fairchild Publishers

Combined with the pilot house map (p 61), this ribbon map demonstrates the importance of accurate surveys and cartography to riverboat life. These maps give detailed information about such data as dams, levees, currents and other navigational aides.

THE RIVER: IMAGES OF THE MISSISSIPPI

> . . . the great Mississippi, the majestic, the magnificent Mississippi, rolling its mile-wide tide along, shining in the sun . . .
>
> Mark Twain *Life on the Mississippi*

An Exhibition Organized by Walker Art Center

The exhibition is presented with the assistance of the Minnesota Historical Society, and with the support of the National Endowment for the Arts, the National Endowment for the Humanities, the Minnesota State Arts Board, Minneapolis '76 Commission, The Bush Foundation, the Dayton Hudson Foundation, the General Mills Foundation, the Downtown Council of Minneapolis, Ellerbe Architects/Engineers/Planners, the General Electric Company, U.S. Army Corps of Engineers, St. Paul District, Twin City Barge & Towing Company and Twin City Shipyard, Inc.

DQ 101/102

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Mr. David Plowden, Long Island, New York
Mrs. Norman B. Woolworth, New York

Acknowledgments

Although this exhibition includes standard categories of objects such as paintings, drawings, sculptures, prints, photographs, film and video, its organization took the staff of Walker Art Center quite far afield. In its research and assembly, we had valuable assistance from many individuals and institutions representing diverse subject areas by no means limited to the field of art: historians, geographers and ecologists were our collaborators.

The relationship of these works of art to so cosmic a theme as the Mississippi was never lost upon us. While these works stand on their own merit, their common focus on the great river relates them historically and symbolically, and our intent is to provide a historical as well as stylistic overview.

In 1950, the City Art Museum of St. Louis organized *Mississippi Panorama,* a large-scale precedent for the 19th century section of the current Art Center exhibition. The monumental Egan-Dickeson Panorama was included. The St. Louis Art Museum (as it is now known), by its generous loan of many objects, including the Panorama, continues its distinguished association with the theme of the river.

Because of its scale, this exhibition involved many members of the Art Center staff in its preparation. Their individual contributions are acknowledged on p 102 of this publication. On behalf of Walker Art Center's Board of Directors and staff, I would like to thank the many individuals who, through their expertise and association with specialized institutions, helped make *The River: Images of the Mississippi* a reality.

Martin Friedman.

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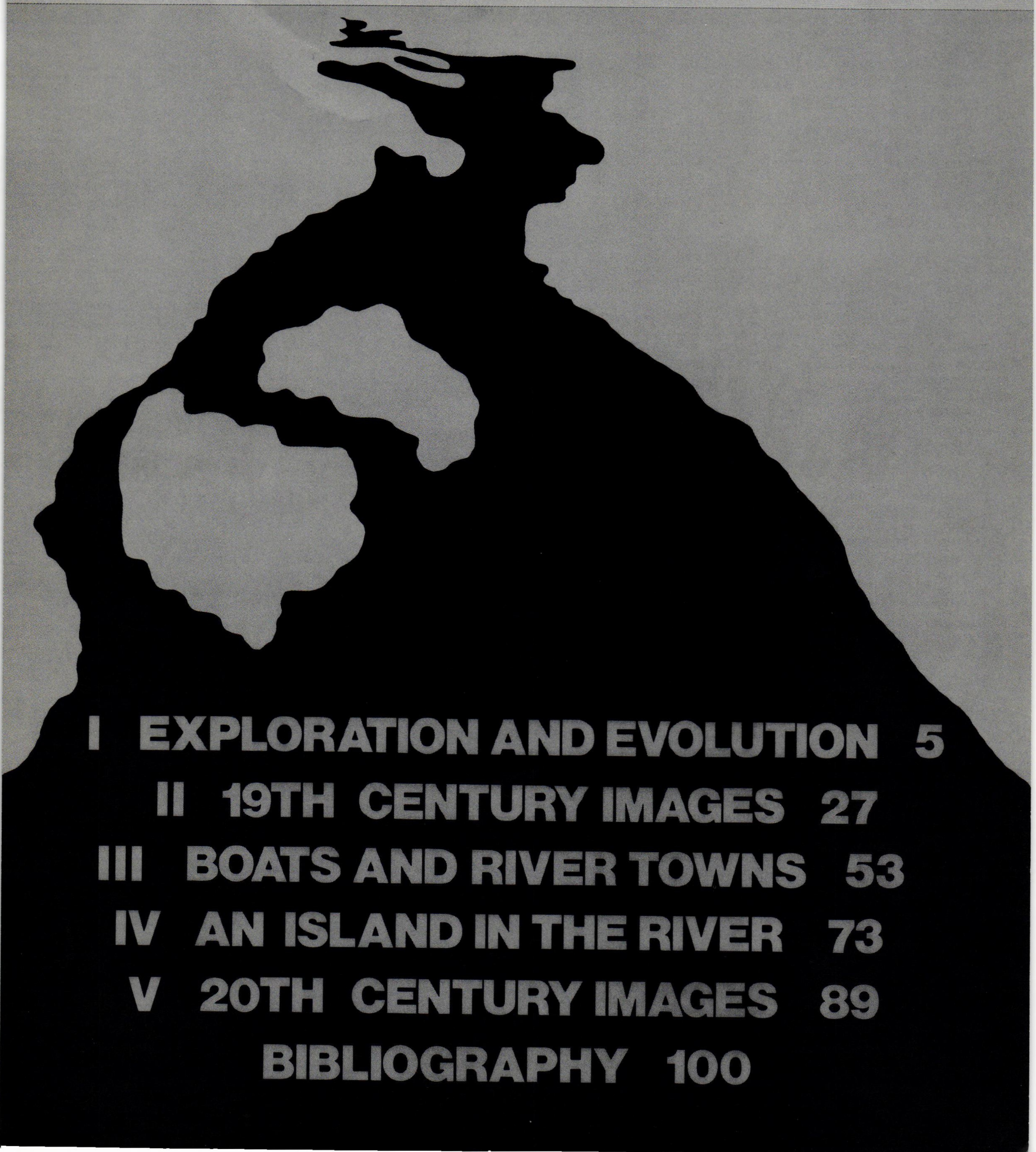
. . . shining river—that enchanted thread which ran through all, from which all swept away, and towards which all inclined . . .

Thomas Wolfe *Of Time and the River*



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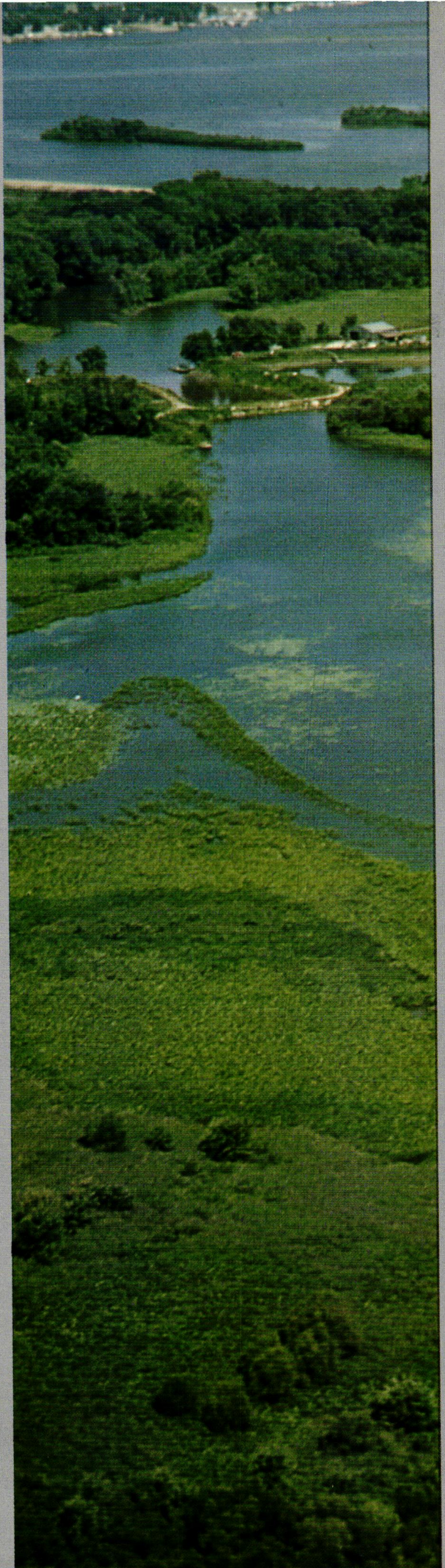

I EXPLORATION AND EVOLUTION

> . . . man has always been drawn to dwell beside water, even before he had a name for water and fire, drawn to the living water, the course of his destiny and his actual physical appearance rigidly coerced and postulated by it.
>
> William Faulkner *Old Man*

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Introduction

Martin Friedman

(opposite)
George Caleb Bingham
Two Sketches for *The Jolly Flatboatmen in Port*
Collection: Bingham Sketches, Inc.
(below)
The Jolly Flatboatmen in Port, 1857
Collection: The St. Louis Art Museum

The Jolly Flatboatmen in Port is the second, and most ambitious of Bingham's three paintings on this theme. It was completed while the artist, at the age of 48, was visiting Germany to reacquaint himself with the prevailing clear-edged Dusseldorf style. Bingham's total familiarity with Mississippi folk-life permitted him to recreate its atmosphere from the many sketches he took abroad with him.

This painting celebrates 19th century river life. It depicts a group of men gathered on the deck of a flatboat at the end of another work day. Its 21 figures represent many types of river people, including dock-hands, merchants, boatmen, slaves—even two children at play. Many of the river's stock characters have been transformed in the painting; their elegant poses reflect the artist's penchant for idealizing his subjects, and have little to do with historical fact.

Bingham's genius was his ability to idealize actual situations—people, objects, and backgrounds along the river, became elements of his topical allegories. Such perfect conceptions of the world were created in his studio, but were based on sketches made at various river sites. When constructing the narrative on canvas, Bingham arranged the sketch to fit a particular compositional need: figures were treated as abstract forms yet retained the conception gained from the ink and pencil studies.

As illustrated here, the two sketches, of a fiddler and a dockhand, were studies for the 1857 painting of the flatboatmen. Generally, Bingham's drawings are full figure studies, each carefully delineated and modeled by an ink wash. The somewhat obsessive attention given to the folds of garments, and the otherwise blank field surrounding the figure, makes the drawing appear highly sculptural.

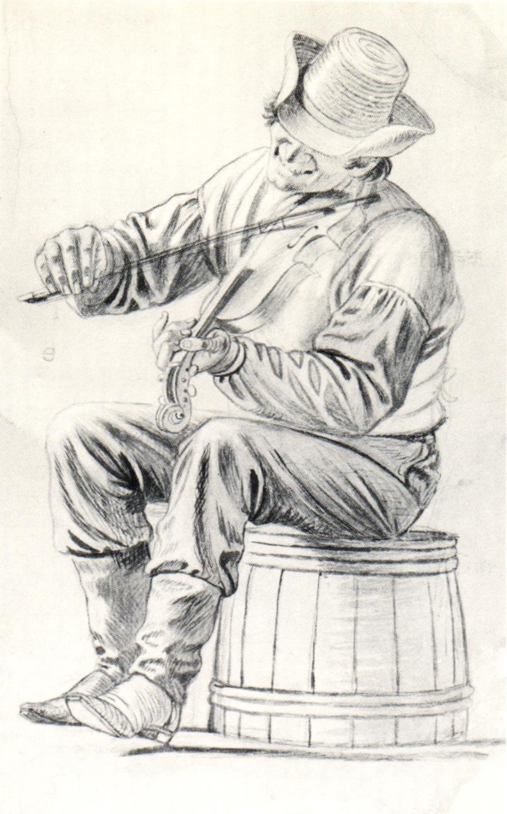
Geographically there is one Mississippi River; symbolically there are many. The observations of generations of explorers, fur traders, steamboat captains, writers, painters and musicians have added to its legend. The river has been regarded as a life-sustaining force and, alternately, as a ruthless destroyer whose rampaging floods can eradicate the life along its banks. By its seemingly endless course and variable identity, the Mississippi not only unites the country's northern and southern extremes but its presence keeps alive some of its most stirring history. The major conduit of a vast interior waterway that includes the Ohio and Missouri, it originates as a meandering creek in northern Minnesota, gaining breadth and turbulence as it flows toward its delta in Louisiana, approximately 2,350 miles away.

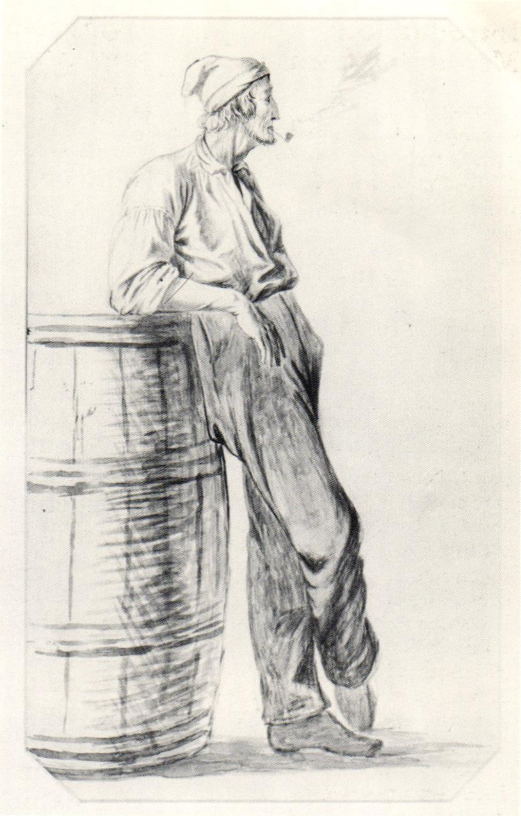
The Mississippi remains an enduring theme in American culture and this exhibition examines its presence in our art. Inextricably part of the American mystique, the Mississippi has been the source of a great spectrum of imagery, providing inspiration to generations of artists: the native Americans who lived along its shores, and Europeans and Americans from the 19th century to the present. Included in this presentation are painting, printmaking, photography, Indian artifacts, cartography, architecture, filmmaking and video works. Their common theme is the Mississippi River; its image is omnipresent, the variations on it are seemingly infinite. This catalogue, a special issue of *Design Quarterly,* generally parallels the exhibition's organization. It begins with *Exploration and Evolution,* a section intended to provide a historical context in which the diverse visual responses to the Mississippi River can be considered in relation to historical, geographic and cultural factors.

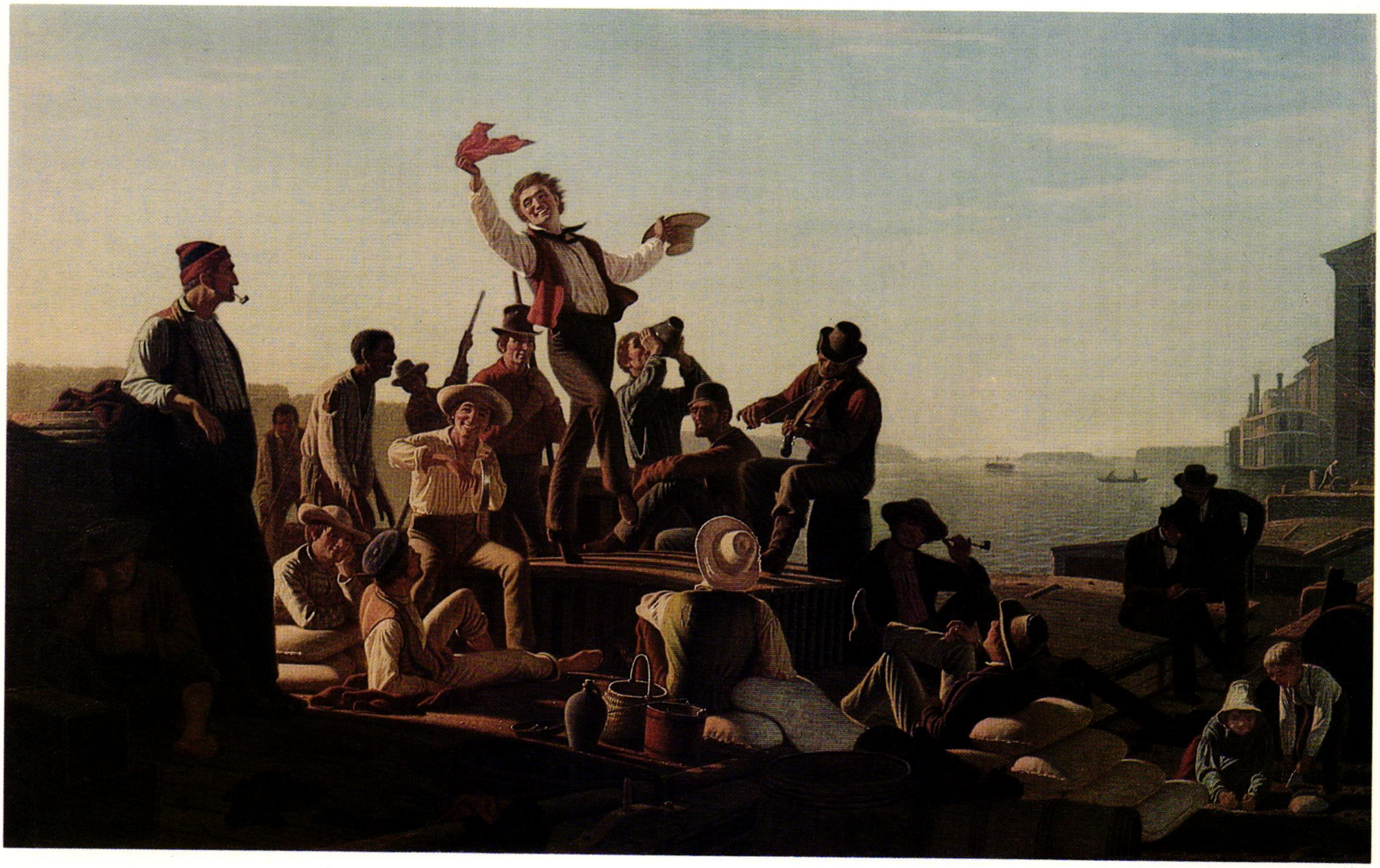
19th Century Images deals with the painting, engravings and photography that document the river. These early portrayals represent most stylistic currents then prevalent in the United States, ranging from visionary commemorations of the river and its adjacent terrain to factual depictions of river town life. *Boats and River Towns* contains accounts of steamboat travel, the evolution of river boats, and panoramic photographs, old and new, of important cities along the great central waterway. The last two subject areas in the catalogue are present and future-oriented. *An Island in the River* illustrates design responses by three groups of architects to an immediate issue—the public use of a major urban site adjacent to central Minneapolis. While their proposals focus on a local situation, the implications are much wider and these ideas could positively affect river city planning here and elsewhere. *20th Century Images* documents works created by a group of contemporary artists for this exhibition. In order to present a spectrum of current artistic reactions to the river theme, the Art Center invited artists identified with various media to participate.

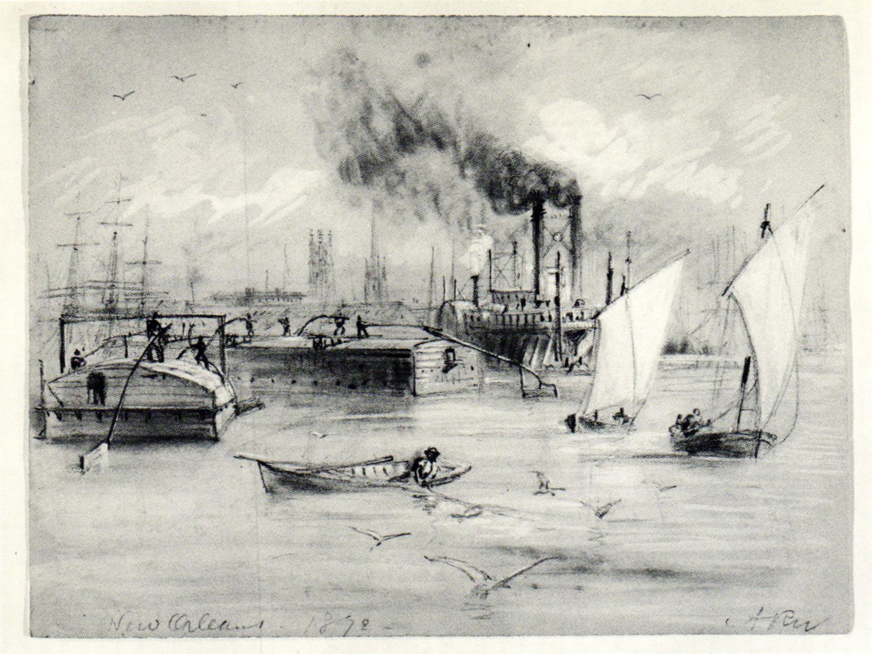
Among the first examples of the Mississippi's graphic documentation are 17th century maps drawn by explorers and missionaries whose knowledge of geography was more intuitive than factual. Father Louis Hennepin was an early documenter who, as La Salle's deputy, explored the Mississippi's upper reaches and made a brave if tenuous effort to describe its origins and course. The results are embodied in a sketchily realized map, published in 1698, whose most precisely defined element is the requisite allegorical cartouche framed by classical personages celebrating the discovery of the river. The map shows the "Mescha Sipi Qui Signifie Grande Riviere" being joined by such other august bodies of water as the Ouisconsins, Les Bides Akanssa and the Ooÿo.

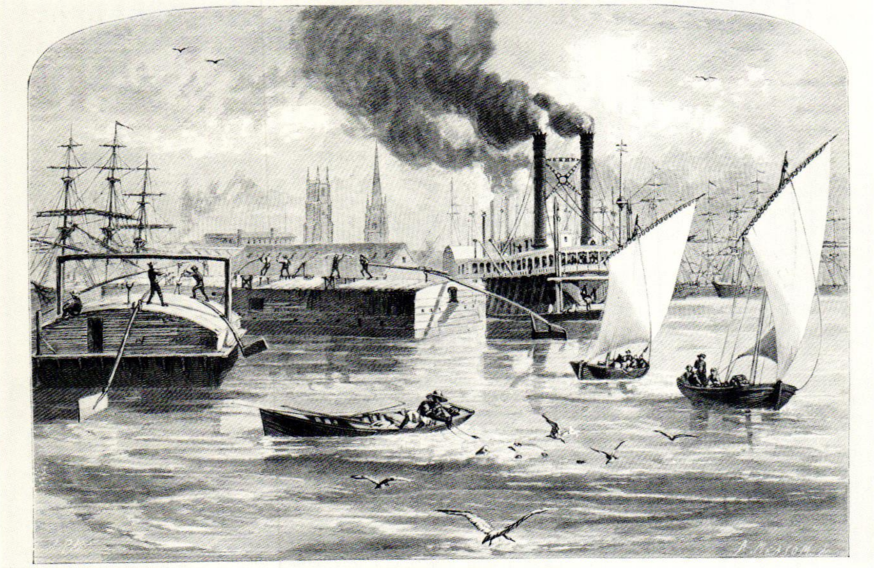
A diverse section of 19th century landscape and genre painting based on river themes illustrates homegrown naive styles as well as translations of European-inspired techniques. It contains groups of paintings of river subjects by such familiar names as Seth Eastman, George Catlin, George Caleb Bingham and John James Audubon, luminaries in the history of American art. Sketches, paintings and prints by other artists whose reputations, until recently, have been primarily regional, reveal a wide range of responses to this subject. A monumental, if highly fictionalized, treatment of the river











appears in the amazing 1850 Egan-Dickeson Panorama. Still well-preserved, fortunately, Egan's colorful tempera on muslin is the only surviving example of this monumentally-scaled painting form depicting the Mississippi Valley, exalting it as the new Eden.

By the end of the 19th century, the bucolic image of the river had given way to sooty realism. The timeless idyll was superseded by a more immediate portrayal of this subject, not only in painting but in widely published engravings made from on-the-spot sketches by artists employed as newspaper and magazine correspondents. Photography, which by the end of the century, had become the dominant means of recording the river and the life it sustained, helped engender a new era of naturalism.

An epic 1858 lithograph of a lively St. Louis, steamboats crowding its waterfront, appears in the *Boats and River Towns* section of the exhibition. This metaphoric journey whose layout was inspired by the long ribbon maps used by steamboat pilots presents groups of prints and panoramic photographs related to major towns along the Mississippi. In it, contemporary photographs record the growth of villages and new towns that modified, then displaced their natural surroundings. By the 1880s, panoramic photographs and bird's-eye view prints were the most popular means of documenting the growth of river towns.

The development of these towns was accelerated by their growing importance as production and shipping centers linked together by the steamboat, the most romantic symbol of 19th century river life. A floating architectural phenomenon, it was uniquely adapted to the river's shallow depths and winding course. Its evolution from cabin-on-a-raft to vision of baroque splendor is illustrated by a group of exceptionally fine models. Shown with these handsome reminders of an all but extinct form of travel are architectural drawings for several steamboats that once traveled the inland waterways.

These romantic personifications of the river, however, fade in the light of present day reality. The powerful "Father of Waters" has not only been domesticated, he has been almost fatally misused. Although here

(opposite)
A. R. Waud
New Orleans, 1872;
The Mississippi at New Orleans
Collection: The Historic New Orleans Collection

Waud's career closely followed the events of the Civil War. This English born artist had been assigned to the field, not as a foot soldier, but as a "special artist," accompanying the Union soldiers on their campaigns against the South. As a war correspondent he made hundreds of small sketches. These drawings, once engraved, illustrated for readers of *Harper's Weekly* or the *New York Illustrated News* important events pertaining to the war. In 1866, he returned to the South and sent back numerous reports of life under the agonies of Reconstruction; sketches from Cincinnati, Louisville, Natchez and New Orleans. The drawing shown here, initialed ARW and dated New Orleans, 1872, is from Waud's 1871 sojourn to New Orleans and the Mississippi delta. This time he had been dispatched to execute a series of drawings to illustrate a two-volume publication, *Picturesque America*, edited by William Cullen Bryant. The drawing captures the scale and activity of the busy harbor, showing a huge flotilla against a shoreline punctuated with church steeples. It includes numerous river craft—a fisherman's longboat, three-masted sailing ships and smaller sailboats, a stately paddle-wheeler, and the ubiquitous flatboat.

Waud's technique depends on quick pencil notations, with thin washes and white highlights added for greater clarity on toned paper. At the hands of the engraver—normally not identified but here signed H. Meason, Sr.—the artist's personal sketch style is replaced by the sharp-lined wood-engraving process used in printing the book.

and there along the banks a nostalgic reminder of Mark Twain's Mississippi persists, the paradisial river no longer exists. Industries that evolved along its banks did so through an exploitive relationship with it. The river landscape that provided a memorable profusion of wilderness images to early 19th century artist-naturalists, has been largely obliterated by the grim steel and concrete appurtenances of urban progress. Cities that flourished along the waterfront have leveled its banks, polluted it, banished its wildlife and created physical and psychological barriers between it and their inhabitants.

In the last decade, rivers, along with other important natural resources, have become a subject of increasing public concern. Coupled with the immediate need to prevent further destruction of their delicate ecology has been new public awareness of the river as a major urban asset. For this exhibition, the Art Center, in cooperation with the Minneapolis '76 Commission, has sponsored the preparation of three designs for the development of Nicollet Island. The architects are The Hodne/Stageberg Partners, Minneapolis; Craig Hodgetts and Robert Mangurian of Studio Works, Los Angeles, with consultant Charles Moore; and The Institute for Architecture and Urban Planning, led by Peter Eisenman, New York. The island is a long-neglected 48-acre wedge in the Mississippi near the central business district of Minneapolis. The imagery generated for it in this exhibition could affect the future development of the entire upper Mississippi River.

Despite differences in style, an essentially narrative approach characterized the work of the 19th century artist. Such consistency is hardly typical today, as evidenced by the various reactions of the artists who created works for this exhibition. The tradition of panorama painting underlies Terry Schoonhoven's surrealistic "mural" painted directly on the walls of the Art Center's Concourse. His image is jarring—a suddenly dry Mississippi River bed over which an unchanged Minneapolis skyline looms. This "possible" reality is startlingly explicit. Less traumatic are the weightless images of video artist Nam June Paik. In a cluster of luminous rectangles floating above our heads, fish, birds and the changing landscape of the river become fugitive images in a darkened room. Time-on-the-river is the subject of Louis Hock's film *Mississippi Rolls* whose frames are projected in a vertical trio on the gallery wall. The film provides a curious sense of participation in the past, present and future as it dwells on the modification of river forms under changing time and light conditions. The Mississippi constantly alters its shoreline, changes its direction, broadens and narrows itself and, at its mouth, shallow rivulets create fantastic patterns. In response to these forms, Andrew Leicester has made a flat sand sculpture whose granular surface is modified by the water that flows over it. Another aspect of river imagery is described in the continuous scan-camera photography of the Globus brothers, Richard, Steve and Ronald, who have created a kaleidoscopic, non-stop view of the upper Mississippi in a mirror-lined box.

The Mississippi has been a fertile source of personal visions by artists who have contributed to its myth. These visualizations have focused our attention not only on the great serpentine as it was a century ago, but on the role it might play in our lives today. As this exhibition illustrates, the artists' vision can heighten our consciousness of the Mississippi and though the river is no longer synonomous with primal nature, its potential as a generator of new images remains strong.

The Profile of a History

T. H. Watkins

T. H. Watkins, a member of the Board of Editors of *American Heritage* magazine, is the author of thirteen books on history and conservation,. including *Mark Twain's Mississippi: A Pictorial History of America's Greatest River* (1974) and the recently published *Mirror of the Dream: An Illustrated History of San Francisco.*

In the experience of western man, the Mississippi began with a long dreaming, and some of the dreams are with us yet. Its discovery was born of imagination, and its reality from source to mouth was not fully revealed for more than three centuries after that discovery—three centuries that saw the coming and going of a wildly diverse cast of characters. Wars were won and lost, various flags were raised and lowered, an almost constant struggle was waged among three nations for the fruits of empire, a struggle that led to the triumphant emergence of yet a fourth nation made up of that "new man," the American. This new nation took the river as its own and gave it nearly two more centuries crowded with life. Small wonder, then, that the Mississippi has been called the most American of all American rivers; it carries with it a historical presence unmatched by any other waterway in our narrative.

Consider, first, the river's discovery and the dimensions of myth from which it sprang. For more than a generation after *conquistador* Hernan Cortez had defeated the Aztec nation at Tenochtitlán, the City of Mexico, Spanish exploration of its New World empire was hagridden with such fanciful notions as the Seven Golden Cities of Cibola, or the land of Gran Quivira, whose king slept under a tree hung with little golden bells, or an island called California, populated with Amazons and griffins and full of gold and pearls and other rich and wonderful things.

Such dreams led men into some of the most unlikely wilderness on the continent, and from the very beginning the Mississippi began to edge its way into Spanish consciousness through the services of myth. In 1519, shortly after Cortez landed on the east coast of Mexico, a navigator named Piñeda was sent north to explore Florida to see what wealth and wonders it might hold. His ship was blown off course during a storm, and Piñeda found himself wandering off the coast of the Gulf of Mexico. It is possible that he encountered the Mississippi during this unplanned exploration, for in a crude chart of his travels he included a river he called *Rio del Spiritu Sancto* (River of the Holy Ghost). Published in 1524, this was perhaps the first known depiction of the river.

A second possible encounter came less than ten years later when Panfilo de Narvaez, appointed governor of Florida in 1527, put together a 400-man expedition in 1528 and sailed off to plunder his territory, which was his right and duty by Spanish tradition. Again, storms drove the expedition off course, and Narvaez, forced to put ashore somewhere near Tampa Bay, led the expedition west through the bogs and swamps and sawgrass glades of the Florida Panhandle. By the time he reached the Apalachicola River, half the expedition had died, and Narvaez gave up the dream of pillage. Five crude boats were constructed and set sail on the uncertain waters of the Gulf. One of these was commanded by Cabeza de Vaca, the expedition's treasurer, and on his way to the east coast of Mexico he passed the mouth of a river whose current was so powerful that it shoved his little boat two miles out into the Gulf, where he reported he could yet take "fresh water within the sea, because the river ran into the sea continually and with great violence."

This could only have been the Mississippi, but de Vaca was a long time in letting it be known. His was only one of two boats to make it across the Gulf to somewhere near Galveston Bay, Texas. Indians captured or killed most of the survivors, and only de Vaca and three companions managed to stay alive after a grueling *hegira* across most of what would become known as the American Southwest. In 1536, de Vaca and his men were discovered by Spanish slave-hunters in northwestern Mexico. The gaunt men, reduced almost to ghosts, had splendid tales to tell, not only of their incredible journey, but of the probable existence of seven rich cities that lay somewhere northwest of the original landing site at Tampa Bay.

These stories came to Hernan de Soto, who had been appointed governor of Florida after the disappearance of Narvaez. De Soto knew a good myth when he heard one, and in 1539 he put together his own plundering expedition, this one of 750 men. He, too, landed at Tampa Bay and proceeded to murder and pillage his way on a roundabout course in search of the splendiferous seven cities—north out of Florida,

(opposite)
Ayer Manuscript Map
Carte du Fleuve Saint Louis, 1723
Collection: The Newberry Library

These plans are an important historical record of French settlement and economy in North America. They give a very reliable environmental/historical/cultural impression. The universality of natural, unsettled lands, the relative importance of river, lake and ocean in the overall scheme of things are all perfectly shown.

British Army Landing Map, 1815-16
Collection: Louisiana State Museum

This map is particularly interesting when compared with the Ayer Maps (one is shown here) of the same area, as enormous development took place between 1723 and 1815.

British interest in New Orleans is indicated by the care and detail shown in this map, reflecting the importance of the Mississippi River system to southern and western development, until its eclipse by the railroads in the 1850s.

States; between 1840 and 1850 it handled more export trade than New York City and more than 50 percent of the exports of the entire nation. In that same decade, its commerce exceeded the annual tonnage of the entire British merchant marine.

Beyond anything else, this was the Mississippi of steam, whose energy propelled its commerce, whose living symbols entered our national iconography. Hardly an American now alive cannot summon up the image of those great boats, those "wedding-cakes-on-water," which plied the Mississippi and Ohio from New Orleans to St. Paul or Pittsburg, their whistles cutting the air with screams, their paddlewheels grumbling and splashing. In 1811, the first, a narrow-hulled sidewheeler called the *New Orleans,* made the trip from Pittsburg to New Orleans in a matter of months; by 1860 the same trip was a matter of days, and nearly 1,000 boats were churning the water of the Ohio and Mississippi, carrying all the goods and produce of the upper and lower valleys, as well as all the parts and parcels of that stew of humanity that bubbled on the border between an old, eastern frontier and a new, western frontier—harlots and southern belles, aging creole merchants and French trappers, drummers, slaves, tradesmen, mountain men, and land speculators, gamblers, farmers, riverboatmen, confidence men, artists, and actors, plantation owners rich in slaves and land, horny-handed sons of toil, rich in little but hope. High or low, black or white, they all shared in the common heritage of the Mississippi and of the great boats that will forever be connected with its name.

A national memory... and in a little over two generations little was left of it *but* memory. The Civil War began the process of change by destroying the plantation system with which the Deep South had pillared its economy; the railroads did the rest.

Even before the war, the railroads had begun snaking into the upper valley, and by war's end there were railroad connections between all its major cities—and from them to the harbors of Philadelphia, New York, and Boston.

It was not until World War I that the river began to come out of the economic doldrums. Not all the railroads and automobile highways were able to handle the transport of the necessities of war, and the War Department forthwith went into the river business in a big way, merging surviving local carriers into a complex transportation network called the Federal Barge Lines. After the war, the system was continued and expanded (it was not until 1953, in fact, that the Federal Barge Lines were returned to the private sector), to the profit of industrialized agriculture and a growing heavy industry, both of which found it cheaper and more efficient to ship heavy bulk cargoes on river barges rather than in railroad cars. The United States Army Corps of Engineers stepped in to pour hundreds of millions of dollars into river improvements, gouging out shipping lanes, creating locks, dams, holding basins, spillways, breakwaters and seawalls, and reconstructing old levees. World War II merely accelerated such development, and over the next generation the region's internal waterway system, with the Mississippi as its heart, was transformed into one of the major commercial transportation complexes of the world. Today, the main channels and all navigable tributaries of the Mississippi, Missouri, Illinois, and Ohio Rivers float more than three hundred *million* tons of cargo every year, ranging from crude petroleum to grain, from coal to soybeans.

The Mississippi is building a new history now: one of grunting, snub-nosed barge tugs pushing along lashed-together steel barges in groups the size of football fields; of high-rise cities and urban redevelopment and the burgeoning growth of suburbs; of farms that are more like factories, and of factories and refineries producing everything from steel plates to residual fuel oil, liquid sulphur to plastics; and of a rampant tourism—as well as the pollution and over-use that too often goes along with it all. Energetic, progressive and frequently exciting, this new history—but one wonders if it will leave the generations to come images powerful enough to become part of the national inheritance, memories as pungent as those we recall, however imperfectly, of that older history colored with dreams and hopes and adventures, of a river and a time where it is forever summer.

A Working River

Dwight Brown

Dwight Brown is Associate Professor of Geography, University of Minnesota; his research interests are in the applications of geographic techniques to the management of natural resources.

It is difficult to describe the vast range of behavior between a river delta flood 70 miles wide and water so low most of the flow is sewage effluent. We can illustrate a river's dynamics in a skeletal way with photographs and maps, yet only a 100-year time-lapse movie taken from a satellite vantage point would make it possible to comprehend a part of the true dynamism of the Mississippi River.

A truly elegant though less sophisticated mental picture of the Mississippi's dynamics can be gleaned from the descriptions of the perplexing lessons of Horace Bixby's cub river pilot, Mark Twain. Agonizing over the multitude of conditions and flow levels in every bend of the river which must be learned and just beginning to appreciate the problem, Twain asked Bixby:

> Do you mean to say I've got to know all the million trifling variations of the shape of the banks of this interminable river as well as I know the shape of my front hall at home?
>
> On my honor you've got to know them *better*...
>
> ...and after I have learned it, can I depend on it? Will it keep the same form and not go fooling around?

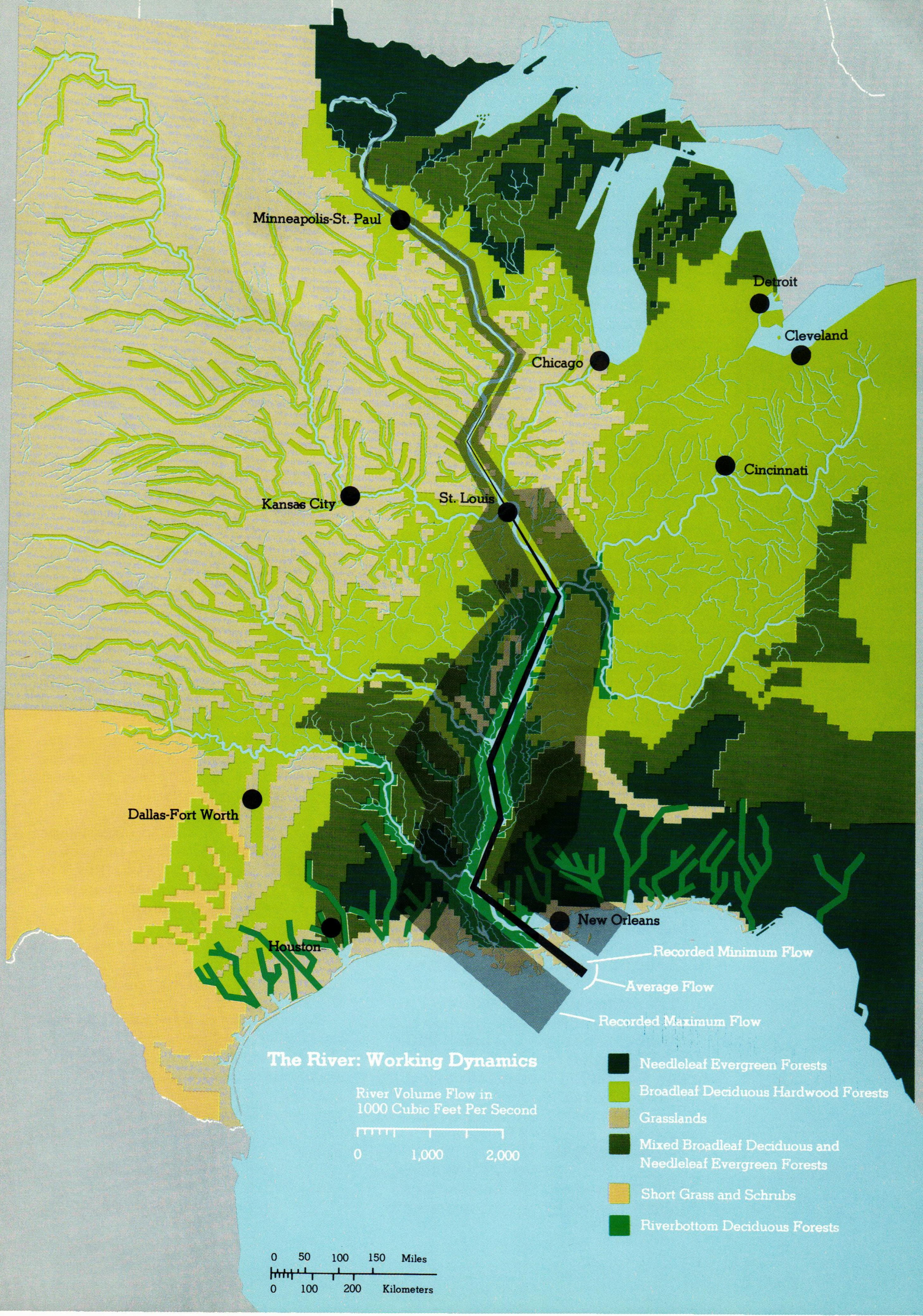
The river changes through performing work—by carrying away sediment and building and rebuilding its channel. Some evidence from the 1850s cited by Twain indicates the rate of sediment removal to the Gulf was a little over 400,000,000 tons per year. A century later, calculations indicate about 340,000,000 tons per year. By using Twain's model, we might forecast that if the past trend continues, the river will be so clean as to carry no sediment at all at 6:58 a.m. C.S.T., on February 24, 2475 A.D.

The preposterousness of such "facts" emphasizes the dynamic nature of rivers. Still, the fluctuations from time to time tell only half the story. There are also great variations from place to place. The drainage basin of the Mississippi is massive and complex, having different climates, landforms and vegetation.

The river draws its water from such diverse lands as the semi-arid High Plains, the lake-studded glacial deposits of the North Country, the midwestern prairies—almost wholly under the plow today—and the thickly forested, rainy Southeast. Forces of erosion work differently in each setting: cutting away at the edges of the still geologically young High Plains; stalled in the bogs and lakes of the North; usually in equilibrium with the forested, rocky uplands of Appalachia, but occasionally whipped up by fresh clear-cutting, strip mining, or a week of cloudbursts. Sediment washed from those diverse sources comes to rest in equally diverse places along the river: narrow floodplains between towering bluffs from St. Paul to Alton; floodplains 50 to 100 miles wide between Cairo and Natchez; the intricate levees, back swamps, salt marshes, bars and shoals of the delta below Baton Rouge.

The magnitude of these differences is visible in different parts of the river system. For example, the Yellowstone River above Glendive, Montana; the Mississippi above Dubuque; and the Ohio above Cincinnati all have nearly equal-sized basins. Yet the Yellowstone in an average year yields 449 tons of suspended sediment per square mile, the Upper Ohio 196 tons and the Upper Mississippi only 41 tons. In an average year, the "Big Muddy" Missouri, the major drainage system of the Great Plains, brings down nearly 550 tons of sediment per square mile of drainage basin. As a result the muddiness of the Mississippi doubles where the Missouri joins it and gradually drops where it begins to mix with the Ohio and the relative muddiness of the Mississippi and its biggest tributaries has not changed since the days of Huck Finn despite drastic land cover changes and channel manipulation.

While Minnesota has gained prominence as the designated source of the Mississippi, most of the water continues to come from the Ohio and most of the mud from the Missouri. This dynamic stream of water and mud provides a focus for the composite output of an overpowering complex of natural forces at work on the North American heartland. The river and its basin have been the stage for major historical events—the displacement of native Americans and advance of the frontier, the riverboat and early rail eras, and modern agricultural and industrial development.


Minneapolis-St. Paul
Detroit
Cleveland
Chicago
Cincinnati
Kansas City
St. Louis
Dallas-Fort Worth
New Orleans
Houston
Recorded Minimum Flow
Average Flow
Recorded Maximum Flow
The River: Working Dynamics
River Volume Flow in 1000 Cubic Feet Per Second
0 1,000 2,000
Needleleaf Evergreen Forests
Broadleaf Deciduous Hardwood Forests
Grasslands
Mixed Broadleaf Deciduous and Needleleaf Evergreen Forests
Short Grass and Schrubs
Riverbottom Deciduous Forests
0 50 100 150 Miles
0 100 200 Kilometers

The Meeting Ground of Three Cultures

Fred Lukermann

Fred Lukermann, Professor of Geography, University of Minnesota and former Academic Vice President, has concentrated in his research and teaching on historical geography and the historical development of geographical inquiry. In addition to this article, Dr. Lukermann has written the captions for the historical maps in the exhibition and in this publication.

The meeting of European white and African black with American red populations occurred over a vast area and an extended time on the North American continent, but in the beginning very few numbers were involved. On the Interior Plains, drained by the Mississippi and Great Lakes systems, no more than several hundred thousand native American peoples seem to have found sustenance.

They were few, the land was big, and the time was long. Indian culture was varied although largely agricultural in the center and the south. Only the Cree, the Ojibwa and the Menomonie seem not to have practiced subsistence agriculture. But here again there were wide differences. In the south and center agriculture was dominant, to the north and west hunting and gathering were of increasing importance.

Probably the most significant feature of Indian settlement was its mobility and fluidity—a dominant characteristic well before European contact. People were always on the move, in small groups, drifting and shifting their foci from one generation to the next. We have instances of 1,000 mile migrations of Cheyenne, Kickapoo and Shawnee populations between 1650 and 1800, for example. In other instances we have whole tribal structures disappearing before the advent of permanent white settlement. Sometimes the cause is inter-tribal warfare, as in the case of the destruction of the Illinois by the Iroquois in the 1660s, or the Natchez and Tunica, before 1700, by disease and war. But far more often the displacement and shifting seems more complex and is best seen as the normal fluidity and variance of a subsistence economy undergoing change from the pressure of an invading commercial economy followed by the intrusion of alien peoples and cultures.

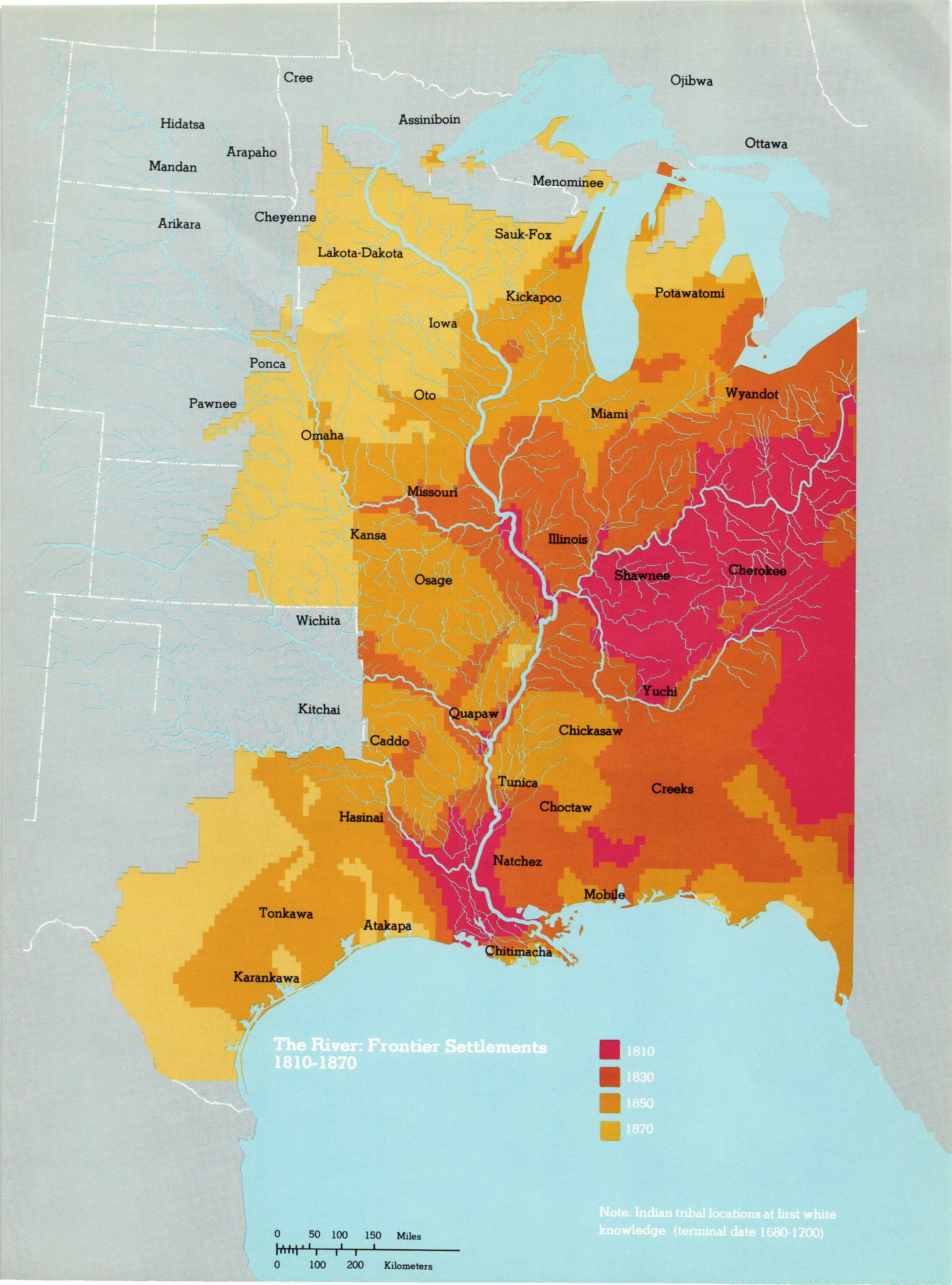
The physical invasion of new peoples, new crops and animals and new land use is late but inevitable. At first in small numbers the European population moves into the interior lowland, spreads along the riverine corridors and then swells to a wave engulfing both forest and prairie. At first the thrust is thin but piercing, across the Appalachians to the Tennessee, the Cumberland, and the Kentucky, up the delta from the Gulf and spotted along the Great Lakes, the Wisconsin and the Ohio. All this had happened by 1790.

Strips and fringes of white and white-on-black invasion of red lands becomes massive in 1810. The push along the Piedmont and the inner Coastal Plain against the Cherokee and the Creeks in Georgia and Carolina is along a wide front. Narrower thrusts up from Mobile and New Orleans are not as extensive, but clearly are as menacing. By the 1830s all is over in the South. The islands of Cherokees and Creeks, Choctaw and Chickasaw are all but engulfed and on their way to Indian territory—the American desert of Oklahoma and beyond.

The wave-like cutting edge of the frontiers of 1830, 1840, 1850 into the upper Mississippi Valley and Prairie spread like a pancake batter on the flat glacial plains. The Midwest is born in one generation of Midlander, Yankee, German, Irish and Scandinavian and half of Ontario for good measure.

By the time Congress gets around to passing the Homestead Act, Grant takes Richmond, and Sherman takes Atlanta, the fertile valley of democracy is all but occupied. The middle border has thrust itself to the Great Plains. There is now a lapse in the center of Kansas and Nebraska. The flood seems spent, but it only pauses to refresh itself, to leap-frog ahead to the Pacific Slope and the Rockies, and gather its final strength in its attempt to obliterate the remaining Plains tribes—primarily the Cheyenne and the Sioux-Dakotah. The 1870s and 1880s are yet to see Little Big Horn and the finality of Wounded Knee—but it seems inevitable now with the wave of settlement perched on the edge of the Red River Valley, the buffalo gone, the railroad advancing and the Texas Longhorn and English Shorthorn moving rapidly up and across the Plain.

Between 1800 and 1880 the stage and the action that was to create this America was all here in this fertile strip, this valley, this heartland, neither east nor west, neither first nor last. These were the middle years, the middle border, the coming of age.



The River: Frontier Settlements 1810-1870

Cree
Ojibwa
Hidatsa
Assiniboin
Ottawa
Arapaho
Mandan
Menominee
Arikara
Cheyenne
Sauk-Fox
Lakota-Dakota
Kickapoo
Potawatomi
Iowa
Ponca
Oto
Wyandot
Pawnee
Miami
Omaha
Missouri
Kansa
Illinois
Shawnee
Cherokee
Osage
Wichita
Yuchi
Kitchai
Quapaw
Chickasaw
Caddo
Tunica
Creeks
Choctaw
Hasinai
Natchez
Mobile
Tonkawa
Atakapa
Chitimacha
Karankawa
1810
1830
1850
1870
0 50 100 150 Miles
0 100 200 Kilometers

Note: Indian tribal locations at first white knowledge (terminal date 1680-1700)

The Climax of the Riverboat Era

John Borchert

John Borchert is Professor of Geography and Director of the Center for Urban and Regional Affairs, University of Minnesota. His primary interest is in the geography of land development in the United States. Dr. Borchert advised on the maps and edited the essays accompanying them in this part of the text.

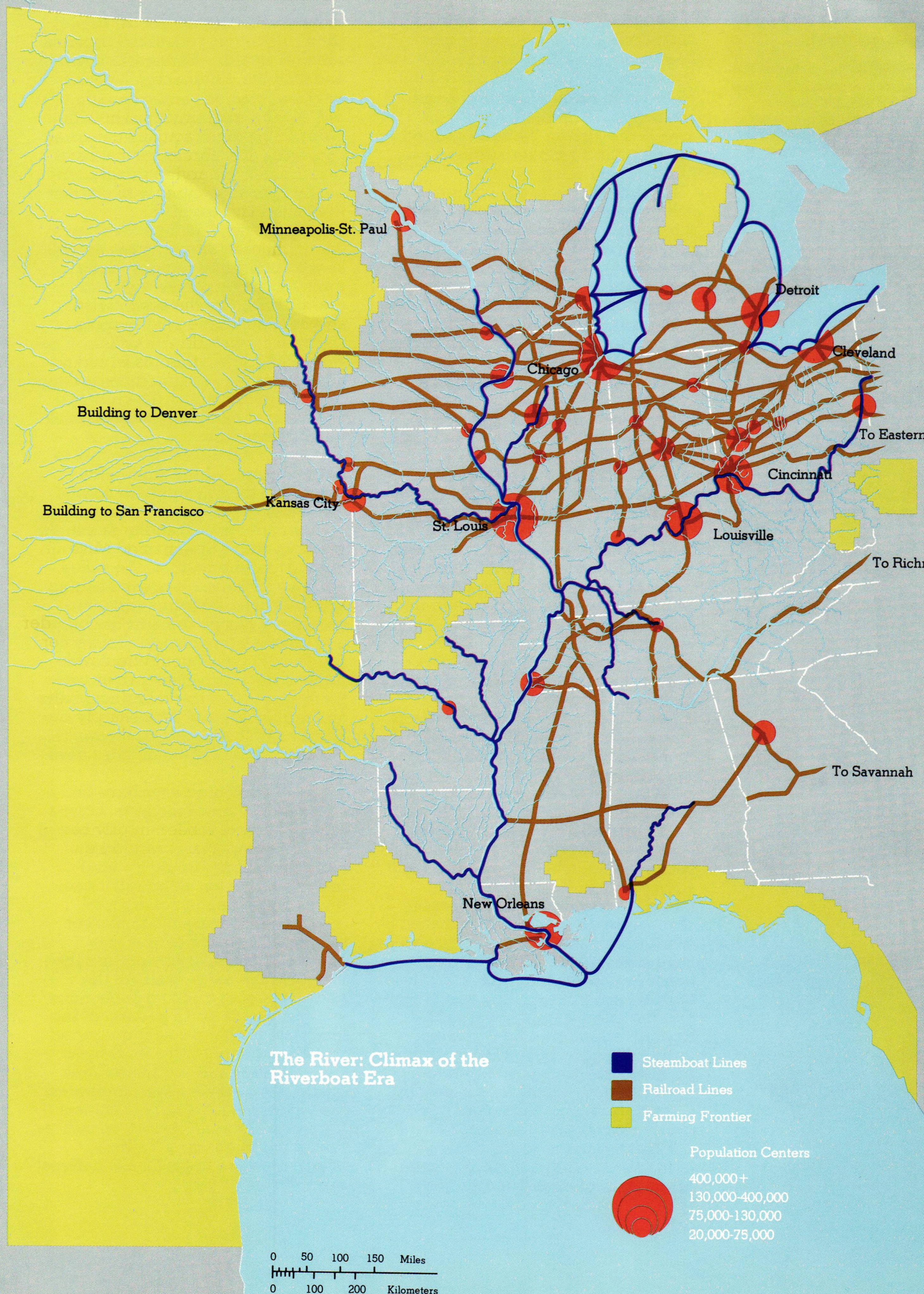
When the first Official Railway Guide of the United States was published in 1868, it described the transportation pattern that appears on the map seen opposite. The preeminent rail net that had helped the North win the Civil War now reached beyond the Mississippi between St. Louis and LaCrosse. In sharp contrast, only a few lines crossed the South. The farming frontier had pushed westward to the prairies from Minnesota to Texas. But western communities in the South were far more isolated than those in the North.

The year 1868 was near the climax of the riverboat era. Registered tonnage of general-purpose packet steamers on both the western rivers and the Great Lakes had risen rapidly since the 1820s and it was to reach its peak in the census year of 1870. St. Louis, at the confluence of the Missouri and Mississippi, was the fifth largest metropolitan area in the nation. The city was the hub of a network of scheduled riverboat lines that reached to St. Paul, Peoria, Sioux City, Pittsburg, Nashville, Muscle Shoals, and New Orleans. St. Louis still vied with Chicago as metropolis of the West. Up the Ohio, Cincinnati was the nation's seventh largest urban area; and Louisville was much larger than most midwestern cities. Dubuque, Keokuk-Fort Madison, and Quincy—all upper Mississippi River towns—were among America's hundred largest urban areas; Peoria and Davenport-Rock Island ranked in the top 50.

Interesting oddities in the rail pattern still reflected its early role as a supplement to the basic river and lake routes. The Illinois Central listed its "main line" as the route from Galena through Decatur to Cairo, and its "branch line" to Chicago! The Midwest-New Orleans route included a 20-mile steamer link from Cairo to Columbus, Kentucky. The whole national "system" actually consisted of dozens of separate companies with connections of varying quality.

But the handwriting was on the wall. The river system was essentially as large as it would ever be. Meanwhile, the rail net was growing swiftly, and its relatively straight lines were everywhere bypassing and shortcutting the slow, twisting river routes. In the next half-century Chicago would add 2,500,000 residents while St. Louis would add 500,000. Soon after the date of this map, St. Louis entrepreneurs would awaken to their growing locational disadvantage in the new era. They would build the Eads Bridge—engineering marvel of its day—to link their economically threatened riverfront with the burgeoning eastern rail system, and organize the densely spaced, misnamed Missouri Pacific rail lines to hold their trade territory that reached southward to the delta. Even so, St. Louis would drop sharply in the national rank order of cities, never to recover its former position. So, too, would Louisville and many of the smaller river cities such as Dubuque and Quincy. New Orleans would fall back sharply but recover in the auto era, when oil would bring unprecedented boom times to the Gulf coast.

Thus, at the time of this 1868 map, the river's role was about to shift from what it had been in pioneer times toward what it would be in modern America.



The River: Climax of the Riverboat Era

Minneapolis-St. Paul
Detroit
Cleveland
Chicago
Building to Denver
To Eastern Cities
Cincinnati
Kansas City
Building to San Francisco
St. Louis
Louisville
To Richmond
To Savannah
New Orleans
Steamboat Lines
Railroad Lines
Farming Frontier
Population Centers
400,000+
130,000-400,000
75,000-130,000
20,000-75,000
0
50
100
150
Miles
0
100
200
Kilometers

A Changing Economy
Russell Adams

Russell Adams, Associate Professor of Geography, University of Minnesota, specializes in economic geography. He has traveled in and written extensively about the geography of the Soviet Union.

The Mississippi Valley, with its surrounding territory, today embraces one-fourth of the nation's land and one-third of its population. How could Father Hennepin and Hernando de Soto, despite their awe of the stream, have envisaged the heartland's modern agriculture, industry and transportation?

In many respects agriculture is still foremost in the economy, since the valley contains the world's greatest crop-and-livestock region, important commercial dairying, and a revitalized and diversified southern countryside. The basin includes the wheat country of North Dakota and Kansas and the Corn Belt lands from Iowa to Ohio, source of over one-third of the world's corn and soybeans. Smaller districts have specialized in high-value cash crops: sugar beets, potatoes and flax in the Red River Valley of the North; intensive dairying from central Minnesota to Michigan; peas in eastern Wisconsin; fruit along Lake Michigan's eastern shore; tobacco from Kentucky's famed Blue Grass; mechanized poultry farms in the Ozarks and central Mississippi; peanuts in northern Texas; and rice and sugar cane in southern Louisiana. No other region can match this range and volume of agricultural output, most of which comes from individual family farms.

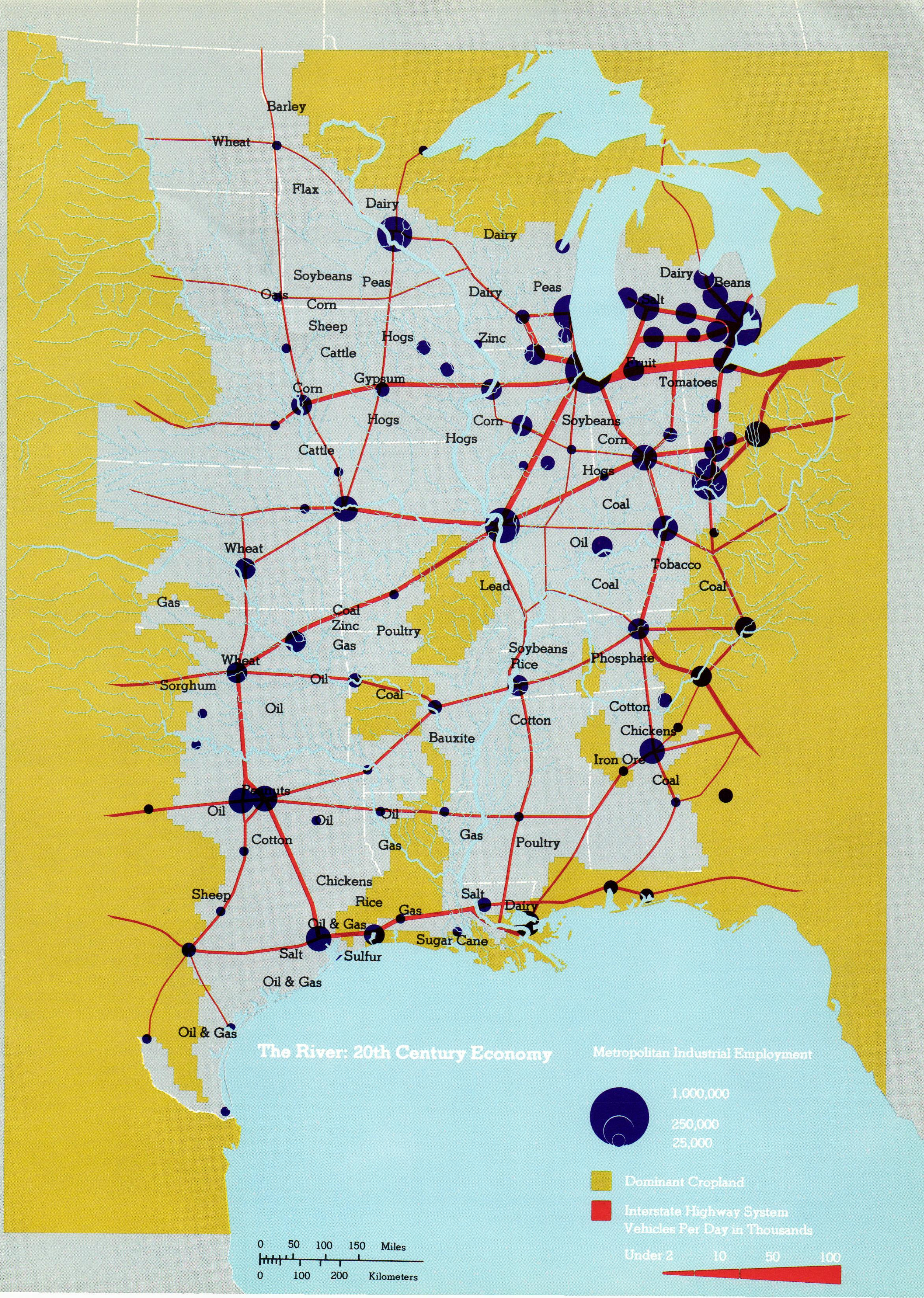
The Heartland also contains many of the nation's largest and most industrialized cities. Although they are still major processors of raw materials, most of the urban centers have a diverse mix of manufactures along with outstanding specialties. Food processing, such as meat packing at Omaha or South St. Paul and cereals in Cedar Rapids, is found in most cities as a reflection of the agricultural base. But some cities, such as the Twin Cities, also have substantial employment in paper and publishing, metal fabrication, electronics and light machinery. The industrial giants toward the East are stronger in heavy metallurgy (Chicago-Gary steel), petroleum products and transport equipment. The automotive centers, headed by Detroit, Flint and Kenosha, turn out nearly one-third of the world's cars.

Flanking the river itself are centers of machinery manufacturing, metallurgy, petrochemicals and a wide variety of consumer goods. In part these industries reflect the region's mineral wealth—Minnesota iron ore and taconite, Illinois coal, Missouri lead and zinc, Arkansas bauxite, and oil and gas from Kansas to the Gulf. Thus, the Heartland's natural resources and human capital have built a well-rounded regional economy which exchanges with the rest of the nation and world.

Today, cities are dependent upon connections with each other as well as with their rural regions. Each transport mode plays a vital and unique role. The Mississippi River and its tributaries form the spine of the internal waterborne system. Coal, sand and gravel, grain, steel scrap and other bulky commodities account for most of this traffic. The number and loads of barges steadily increase downstream from the nine-foot channel in the upper Mississippi to Baton Rouge, where shipments diverge to the sea and intra-coastal waterway.

Railroads were once the dominant medium with a dense network of lines across the prairies, the valley and Great Plains, often establishing towns at river crossings and intersections. Chicago remains the funnel and gateway for six major lines to the Twin Cities, four of which continue to the Pacific Northwest, and for routes across the valley to Omaha and the Southwest. There are fewer north-south railroads, paralleling the Mississippi, but all major cities have service.

Automobile highways have become the universal medium. Over a million miles of roads—mostly paved—reach every community. Most-utilized roads are in the Federal Interstate System; although it comprises only a fraction of the total mileage, it is accessible to most of the population and carries very heavy traffic, especially around the metropolitan areas. Many of the nation's largest trucking companies, which account for 15 percent of the interstate traffic, are headquartered in the region that includes Kansas City, Chicago and the Twin Cities. Lastly, the airlines have penetrated the valley and Chicago's O'Hare is the world's busiest airport, an indication of the Mississippi Valley's importance as a focus for the national economy.


The River: 20th Century Economy

Barley
Wheat
Flax
Dairy
Dairy
Soybeans
Peas
Oats
Corn
Sheep
Hogs
Cattle
Dairy
Zinc
Peas
Dairy
Beans
Salt
Fruit
Tomatoes
Gypsum
Corn
Hogs
Cattle
Corn
Hogs
Soybeans
Corn
Hogs
Coal
Oil
Wheat
Tobacco
Coal
Coal
Lead
Gas
Coal
Zinc
Gas
Poultry
Soybeans
Rice
Phosphate
Wheat
Sorghum
Oil
Coal
Oil
Cotton
Cotton
Chickens
Bauxite
Iron Ore
Coal
Peanuts
Oil
Oil
Oil
Cotton
Gas
Gas
Poultry
Chickens
Sheep
Rice
Salt
Dairy
Gas
Oil & Gas
Sugar Cane
Salt
Sulfur
Oil & Gas
Oil & Gas
Metropolitan Industrial Employment
1,000,000
250,000
25,000
Dominant Cropland
Interstate Highway System
Vehicles Per Day in Thousands
Under 2
10
50
100
0 50 100 150 Miles
0 100 200 Kilometers

Below the Water Line

Ronald L. Crawford

Ronald L. Crawford is Assistant Professor of Microbiology, College of Biological Sciences, University of Minnesota. Doctor Crawford has published more than a dozen papers on the microbial ecology of aquatic systems as a part of his research at the Freshwater Biological Institute, Navarre, Minnesota.

(opposite)

A Simple Food Chain

A food chain is "the serial transfer of food energy from producer plants through a series of organisms with repeated eating and being eaten." The food chain illustrated here begins with microscopic algae which convert the energy of sunlight into plant material by the process of photosynthesis. The algae are "consumed" by insects and insect larvae, forming the first link in the food chain. The insects and larvae are in turn eaten by small fish, which are in their turn eaten by still larger fish. The larger fish (in our example, a large-mouth bass) is finally eaten by an otter, ending the chain. Often man is the ultimate consumer and may be an alternative link in a food chain. Many food chains are more complex than the one illustrated here, and are more properly called "food webs."

America's major rivers, the Mississippi, Missouri, Colorado, Hudson, St. Lawrence and Ohio serve as transportation routes, as sources of drinking water for large cities, as recreational waterways, and simply as magnificent, natural wonders. Unfortunately, these great natural resources have also served as a convenient means to carry away humanity's waste products.

No river, even in its natural state, carries water that is completely pure. Many chemicals and microorganisms enter rivers through such natural sources as marshes, forests, bogs, small tributaries, and even via rain water. However, man has often disastrously upset the delicate natural balance of great waterways by needlessly polluting them with enormous quantities of sewage, silt, heavy metals, acids, pesticides, waste heat and innumerable industrial byproducts.

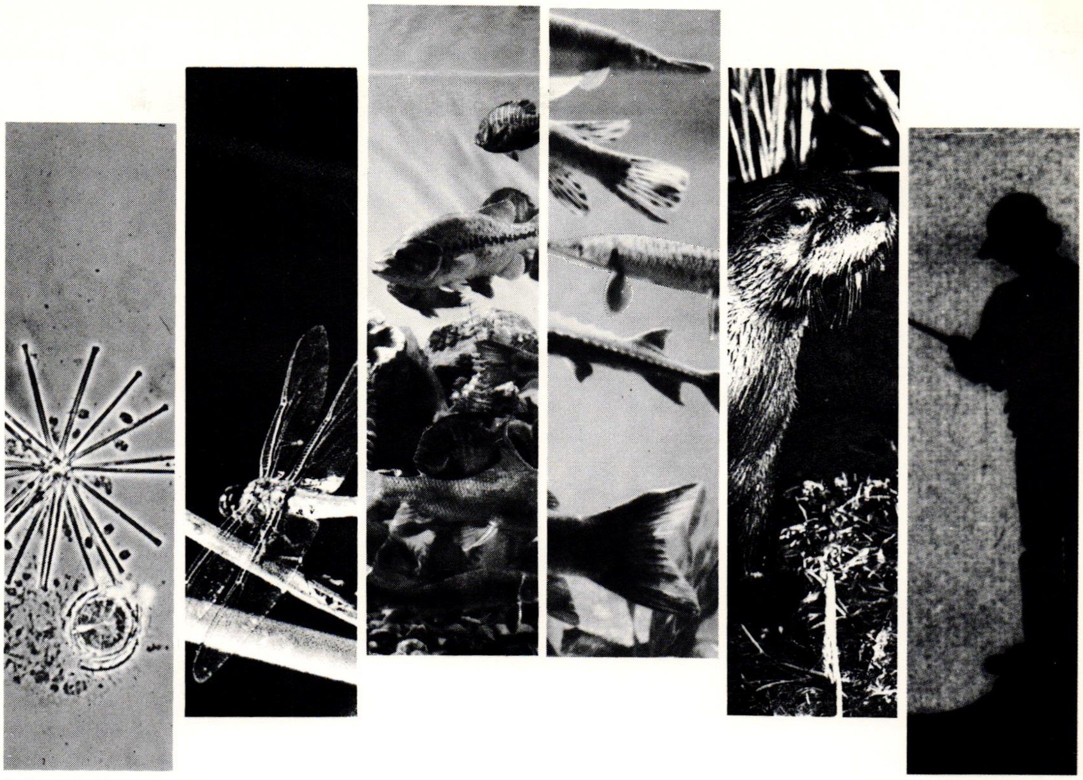
Rivers often are able to clean themselves of man's pollutants, provided the pollution process is halted for a sufficient time. Billions of microbes and the river's sediments can, given enough time, combine to decompose most of the polluting organic wastes by breaking them down into simple, harmless substances such as carbon dioxide. For many years it was assumed that a waterway could rid itself of virtually all polluting wastes by this process of "self-purification." This assumption was based upon the premise that the bacteria and fungi present within a river would decompose to harmless products *any* pollutant that industrialized man might put into it. Microbes do, in fact, possess remarkable abilities for degradation of the innumerable products of man's ingenuity. The number and variety of substances known to be decomposed by microorganisms is truly astounding. These amazing degradative abilities once led scientists to speak of a "Principal of Microbial Infallibility" —a belief that "somewhere or other some organism exists which can decompose any substance known to man." Experience over the past 50 years has shown that "Microbial Infallibility" is a myth, and that the ecological balance of a river or even an ocean is delicate and easily abused. Though a river can "rebound" from even very serious pollution, many types of ecological damage are essentially permanent.

We have learned, for example, through tragic mistakes, that man-made substances such as the insecticide DDT and the industrial chemical PCB endure in soils and water for decades where they are "biomagnified" by concentration through food chains. These non-biodegradable substances have traveled thousands of miles via the Earth's great rivers and now pollute even the seas. Though we have yet to fully appreciate the unknown hazards our past foolishness may yet bring upon us, we may now know enough about nature's frailty to correct our past mistakes.

Water, probably the most important single compound on this planet, is certainly the Earth's most precious resource. Water makes up 80-90 percent of the mass of all living organisms, including bacteria, fish and human beings and it is often referred to as the "universal solvent." In this unique medium, millions of chemical and biological reactions occur that constitute the mysterious phenomenon we call "life." Water is indeed life itself!

Living creatures not only exhibit an absolute requirement for water, but they also show a preference for a particular kind of water. Living organisms generally insist that their water be *clean.* They require that it be free of poisons, sewage, silt and similar noxious materials. For example, predatory fish obtain their food by preying upon smaller animals in a complex cycle scientists term a "food chain." To catch their prey, these predators must see their quarry. If a river, stream, or lake becomes polluted by silt (a frequent product of man's industrial activity), the water becomes turbid and predatory fish (bass, pike, etc.) can no longer see their prey. These fish must then move to clearer water, or as occurs frequently, starve. Similar examples abound of man's detrimental and often mindless abuse of the Earth's irreplaceable water resources: massive fish kills that often accompany discharges of deadly industrial chemicals into rivers and streams; the disappearance of entire animal species as their last sources of pristine water become polluted; the odor of raw or poorly treated sewage that may make up a large fraction of the water that flows even in a great river such as the Mississippi.

Certain substances, such as the insecticide DDT, may be concentrated within organisms as the chemicals pass through a food chain. For example, DDT can be concentrated through a food chain so that the amount of insecticide in the ultimate consumer (e.g. an otter or fish-eating bird) is 500,000 times greater than in the river water itself.


A Simple Food Chain

River Communities

Rivers and streams contain two distinctly different habitats that support life in two forms: "rapids communities" and "pool communities."

Rapids communities typically are made up of organisms adapted to survival in a strong current. For example, the blackfly larva resists the force of the current by using its posterior sucker to attach tightly to river-bottom rocks. The stonefly nymph has a streamlined, flattened body adapted to clinging to the undersides of stones, essentially "hiding" from the current. The main producer organisms of a rapids community are often filamentous, green algae. These microorganisms maintain their position in the current by permanently attaching themselves to firm substrates such as rocks and logs. Even the fish that inhabit the rapids are adapted to life within a current, their primary adaptation being a highly streamlined, muscular body.

Slow-moving pools have a completely different community of organisms than that found in fast-moving water. In river pools the community is much like that of a lake or pond. Here the planktonic algae and diatoms are able to grow and become an important component of the community. In the Mississippi River, at least one species of fish, the primitive *Polyodon*, feeds on pool plankton.

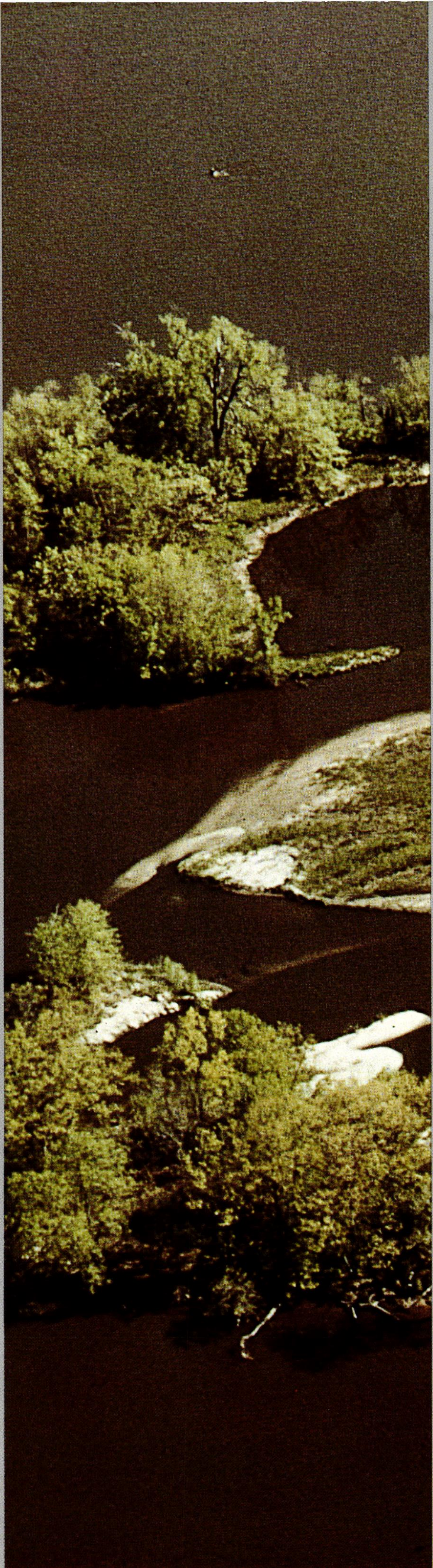
In river pools the bottom is often composed primarily of silt and sediment. Here one often finds "burrowing" organisms such as the dragonfly nymph or the mayfly nymph. These rich sediments also are the home of billions of microscopic bacteria. These tiny organisms perform a vitally important service for the river community as they are the "decomposers" — degrading dead plant and animal materials that fall to the river's bottom.

The fish that live in a slow-moving river pool are often similar to those that inhabit a pond or small lake. For example, in a Mississippi River pool or backwater one can almost always find sunfish such as the blue-gill.

pool community

rapids community

River Communities



II 19TH CENTURY IMAGES

> The face of the water, in time, became a wonderful book—a book that was a dead language to the uneducated passenger, but which told its mind to me without reserve, delivering its most cherished secrets as clearly as if it uttered them with a voice.
>
> Mark Twain *Life on the Mississippi*

Artist-Discoverers of the Mississippi John Francis McDermott 28

Panorama of the Monumental Grandeur of the Mississippi Valley Lisa Lyons 32

From the Ideal to the Real Martin Friedman 35

American River Prints Philip Larson 42

even when he was commanding officer, apparently were not very arduous, and by 1846 his studio was filled with more than 400 paintings. There was never an end to the variety of river views delighting his eye. His only thought of disposal was that some day he might give the collection to a college to pay for the education of his children.

Henry Lewis, another St. Louis painter, changed all this. He became very friendly with the captain and a great admirer of his work. From his 1847 sketching trip Lewis brought back not merely his own oil studies of the "wild, romantic" northern country, but Eastman's just completed picture of an *Indian Burial,* which he intended to forward to the American Art Union. In the spring of 1848 Lewis displayed in his studio two other paintings by Eastman, one of which is the now "lost" *Deputation of Sioux Indians near Mount Trempealeau* (which Lewis copied for his book *Das Illustrirte Mississippithal*), and he succeeded not only in interesting the American Art Union and the Cincinnati Art Union in Eastman's work but was instrumental in the sale of other Eastman oils.

Thus Lewis played an important part in making Eastman known as a painter of Indian subjects and in some degree aided him in obtaining his appointment as illustrator to Henry Rowe Schoolcraft in his six volume work, *History, Condition and Prospects of the Indian Tribes of the United States.* Eastman's primary work for this project (reproduced as steel engravings) is well represented by watercolors from the Hill Reference Library collection depicting *A Dakotah Village, Mourning for the Dead, Spearing Fish, Marriage Customs of the Indians,* and other genre pieces.

Endowed with an unusual eye for detail, Eastman trained at the Academy as a topographical artist. He drew with absolute precision whatever scene aroused his concern or interest, as his sketchbook in the Minneapolis Public Library and the multitude of pencil drawings in the Peabody Museum testify. His finished watercolors demonstrate the delicacy of his brushwork, which heightens the beauty and accuracy of his report on the Mississippi. Actions are portrayed in some of the miniatures, characters are occasionally introduced into the foreground and a sense of story is injected. But it is the river itself that holds us as it did Eastman: Mount Trempealeau in the moonlight, the imposing and dangerous Grand Tower obstructing the river near Cape Girardeau, the shoreline 70 miles above St. Louis.

Another key St. Louis painter, George Caleb Bingham, like Mark Twain, was recreating the river of his boyhood in works that were literally true. In 1851, free trappers from the mountains were still descending the Missouri with packets of their winter take of furs (and even a captured bear cub) for the market in St. Louis, just as Bingham portrayed them in *The Trappers' Return.*

A thousand flatboats every year were still carrying cargos to New Orleans and the men working them, we are quite certain, were exactly like those Bingham has resting by the riverside in *Raftsmen by Night.* Boatmen, in idle moments, must have behaved on the waterfront at St. Louis exactly as he shows them, and busy merchants, reporters on the lookout for bits of interest for their papers, scroungers and lay-abouts paced or sprawled upon the granite blocks of the levee. This was life on the Western waters in the days when Bingham was a boy, a life he never forgot and has preserved for us as no other painter ever did or could. There is no conscious presentation of the grandeur of nature, none of the moral overtones that so often infect the work of the Hudson River painters in the East. Bingham is great because he has painted life on the river simply and directly as he saw and shared it in his youth.

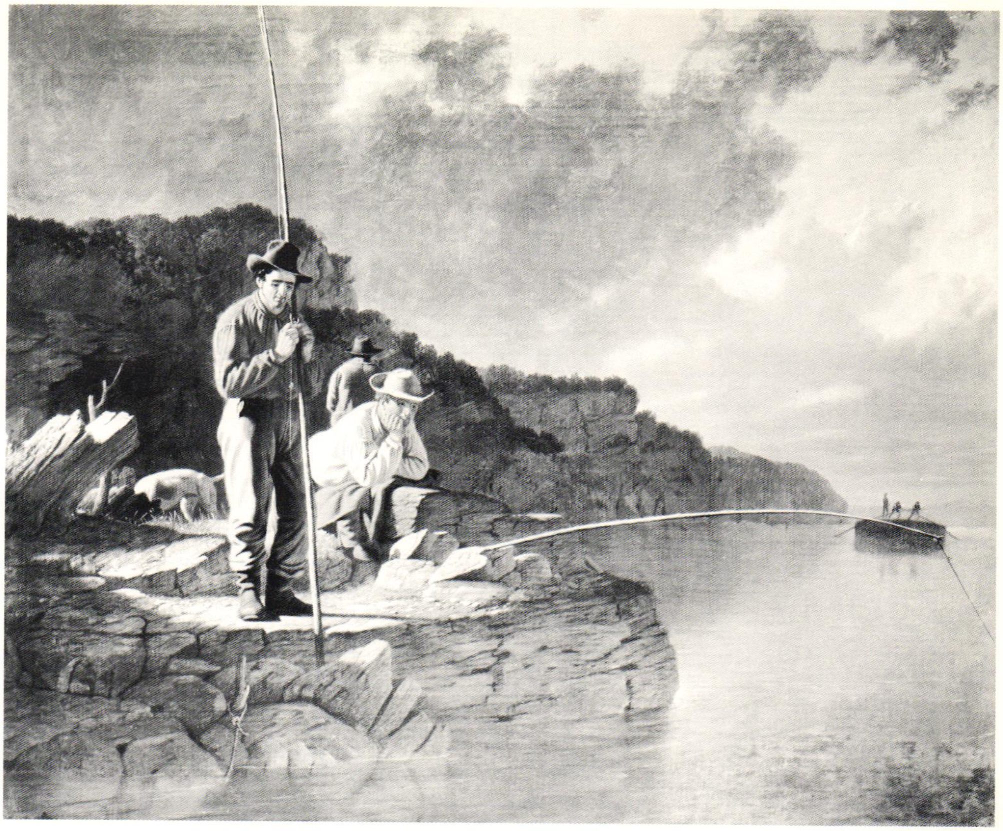
All this soon passes. Eastman was transferred to Texas in 1848 and never returned to the river. Bingham became more and more interested in politics and went off to paint landscapes in the Adirondacks. The romantics discovered the Rockies and made big names for themselves with big canvases. Bierstadt led the way, winning vast prices for his gorgeous, larger-than-life mountain scenes that overwhelm the public. Charles Wimar explored the farthest reaches of the Missouri. Seven years after Henry Lewis painted the rough, open Falls of St. Anthony, the countryside untouched by man, it was shut in by the rapidly growing town of St. Anthony. The day when one could exclaim about the grandeur of the upper Mississippi was over.

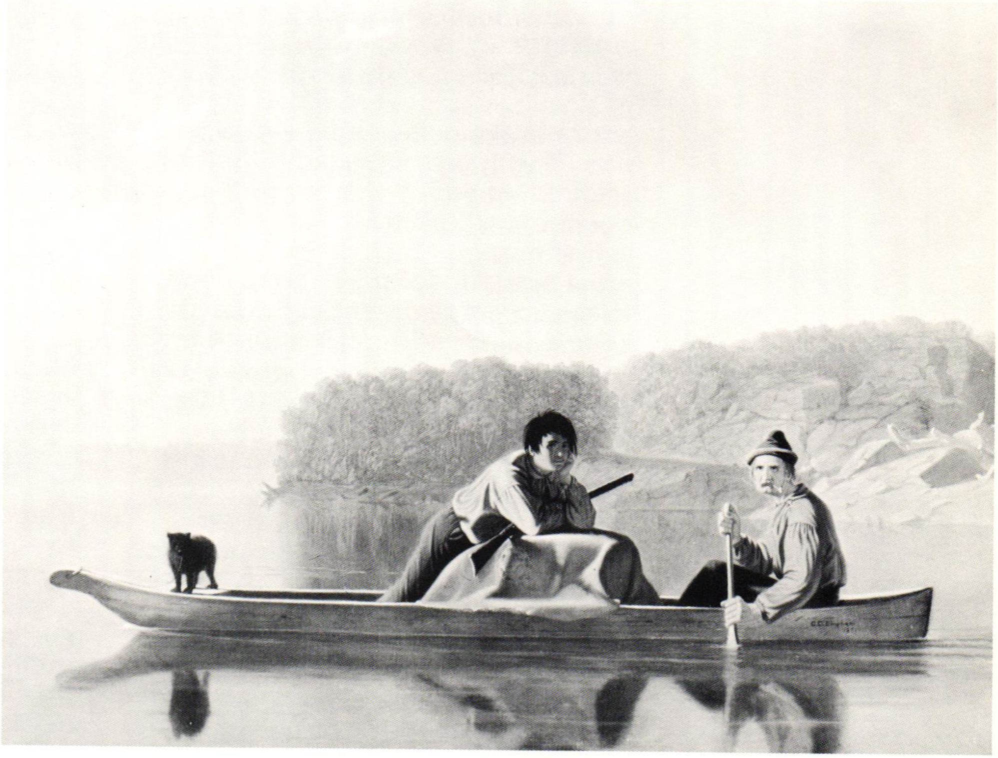
George Caleb Bingham
Fishing on the Mississippi, 1851
Collection: Nelson Gallery - Atkins Museum
The Trappers' Return, 1851
Collection: The Detroit Institute of Arts

Bingham's paintings were based on highly descriptive drawings of stock characters from mid-19th century life on the river. The paintings are amplifications of such studies, utilizing the attitudes of the figures with little modification. Background forms in the paintings are subordinated to "close-up" emphasis on the subjects who are grouped in "frozen" arrangements that underscore the classical character of Bingham's art.

Bingham conceived of these figures in relationship to their surroundings; in fact, both figures and surroundings were constructed within strong compositional strictures. In *Fishing on the Mississippi,* 1851, he balances a trio of foreground figures against three fishermen in a distant flatboat. This is a relatively daring composition for Bingham, who customarily favored a more conservative format. The two groups are related by a spatially ambiguous compositional device: a horizontal fishing pole, parallel to the picture plane, functions as a line tying foreground to distance. Elements of disparate scale are in balance through Bingham's sensitive use of light, as well as line.

Equilibrium, the ultimate characteristic of Bingham's art, is expressed psychologically by harmonious relationships between the boatmen and the river. The figures in the skiff in *The Trappers' Return,* also painted in 1851, are elegantly suspended on the picture plane against the vaporous landscape background. Bingham was not above reusing a successful composition; this painting was based on a work produced six years earlier, *Fur Traders Descending the Missouri* which portrays the trader, his son and in place of a bear cub, a cat tethered to the bow.





Panorama of the Monumental Grandeur of the Mississippi Valley

Lisa Lyons

During the 19th century, many artists sought to capture on canvas the natural wonders of the North American continent. Their fascination with its expansive scenery found appropriate expression in the monumental panorama, a form of painting that had enjoyed some success as a popular entertainment in the capitals of Europe.

The earliest panoramas were installed in specially built circular structures. Spectators, standing on raised platforms at the center of these rotundas, were afforded a 360-degree view of scenes ranging from idyllic landscapes to famous naval battles. These paintings were intended as moral, educational entertainment and visitors were encouraged to purchase pamphlets containing detailed descriptions of the spectacular sights depicted.*

The fact that few artists were able to afford the costs of building display areas for such enormous works led to the development of the portable panorama that could be shown in any auditorium or theater. This new form of painting, virtually cinematic in its sequence of episodes, was created on wide strips of canvas or muslin which were rolled on two enormous spools behind a proscenium. The spools were supported by scaffolding which also supported two operators whose task was to keep the action going as the narrator, often the artist himself, described each event to the accompaniment of music and spectacular sound and lighting effects.

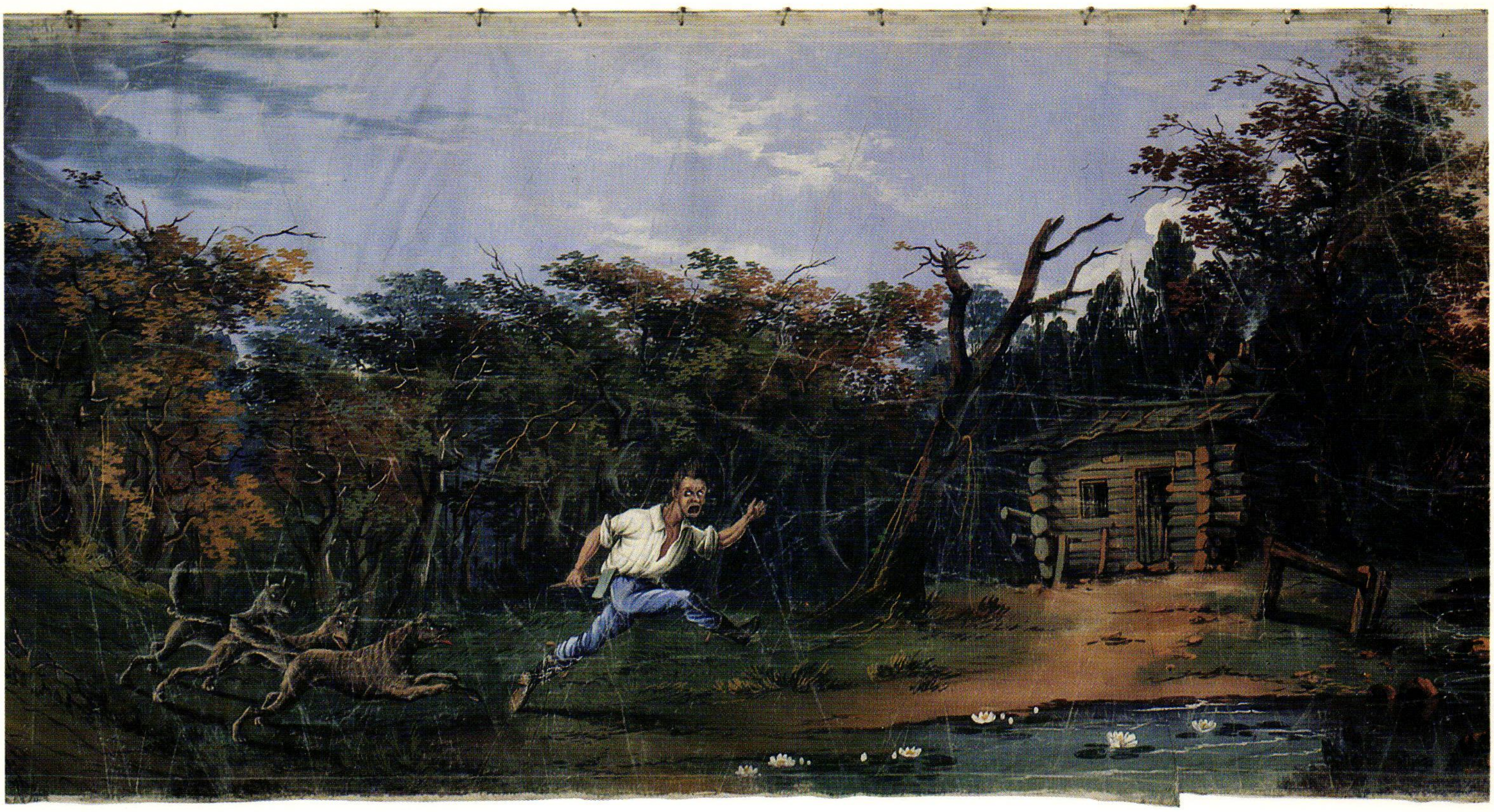
The Mississippi River with its sweeping vistas and romantic history was a perfect subject for such a presentation and by mid-century at least seven river panoramas were in use. The creators of these works, equally skilled as publicists, provided the press and the public with colorful accounts of the scale and historical accuracy of their works. The itinerant artist John Banvard, for example, claimed his panorama to be painted on three miles of canvas, billing it as "the largest picture ever executed by man." Not to be outdone, John Rowson Smith announced that his epic measured four miles in length, ". . . being one third longer than any other pictorial work in existence." (The St. Louis artist Henry Lewis's two-reel panorama was probably the longest, measuring approximately three quarters of a mile in length.)

Eventually, through constant wear and tear, some Mississippi River panoramas fell apart and were discarded; others were sold and have long since disappeared. Today, only one remains, the Dickeson-Egan *Panorama of the Monumental Grandeur of the Mississippi Valley.*

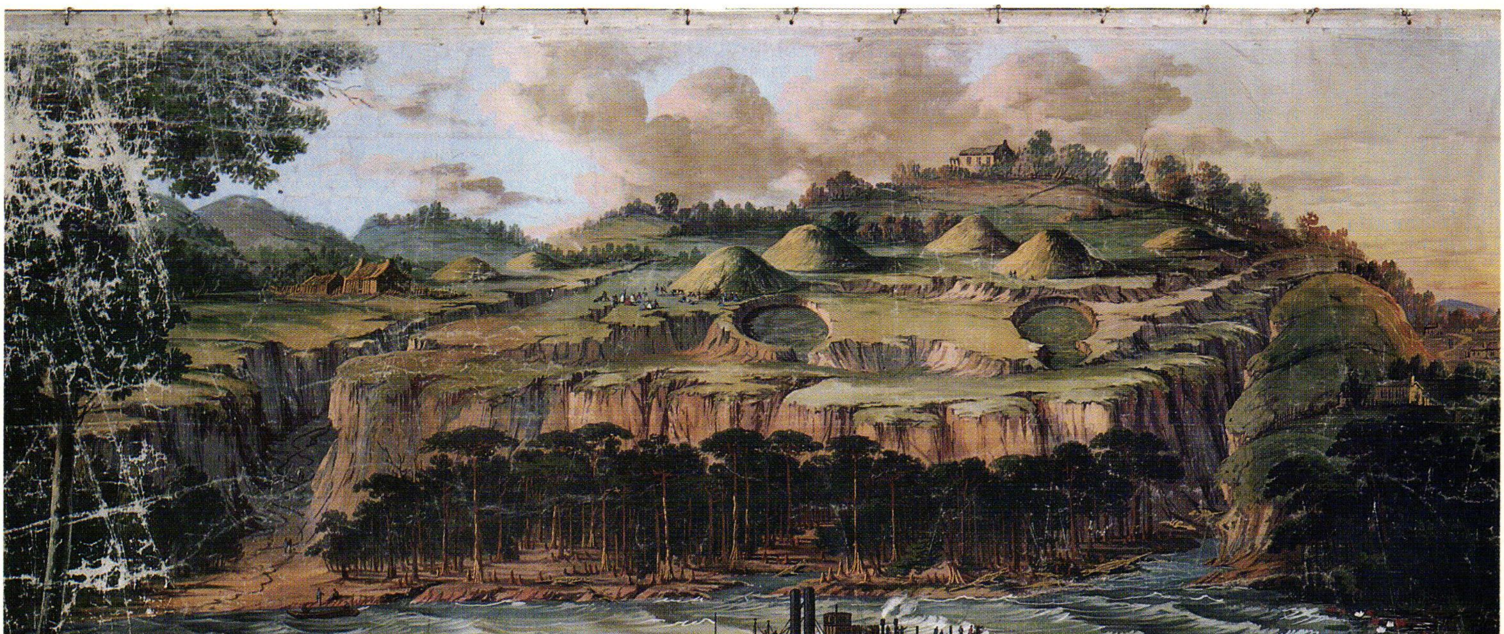
Painted about 1850 by the Philadelphia artist I. J. Egan, this seven and one-half foot high, 340-foot long scroll served as the ultimate visual aid for a series of lectures by one Dr. Montroville W. Dickeson, an amateur archaeologist. Dr. Dickeson made hundreds of drawings while excavating Indian burial sites along the Ohio and Mississippi Rivers between 1837 and 1844; many of these, he claimed, were used as research for Egan's panorama. Traveling from town to town, Dickeson raised funds for future archaeological expeditions by exhibiting the artifacts scavenged from Indian mounds and lecturing on the huge painting.

The Panorama is not a continuous portrait of the river but a collection of vignettes depicting dramatic, idealized river views and quasi-historical events. In its present state it consists of 25 pictures illustrating Dickeson's fictionalized view of the history of the Mississippi Valley from the mid-16th to the mid-19th century. One section of the Panorama has been lost, probably owing to deterioration of the muslin. Its geographically disparate scenes of Indian tribal life, early European settlers and explorers and contemporary events are linked in fluid sequence.

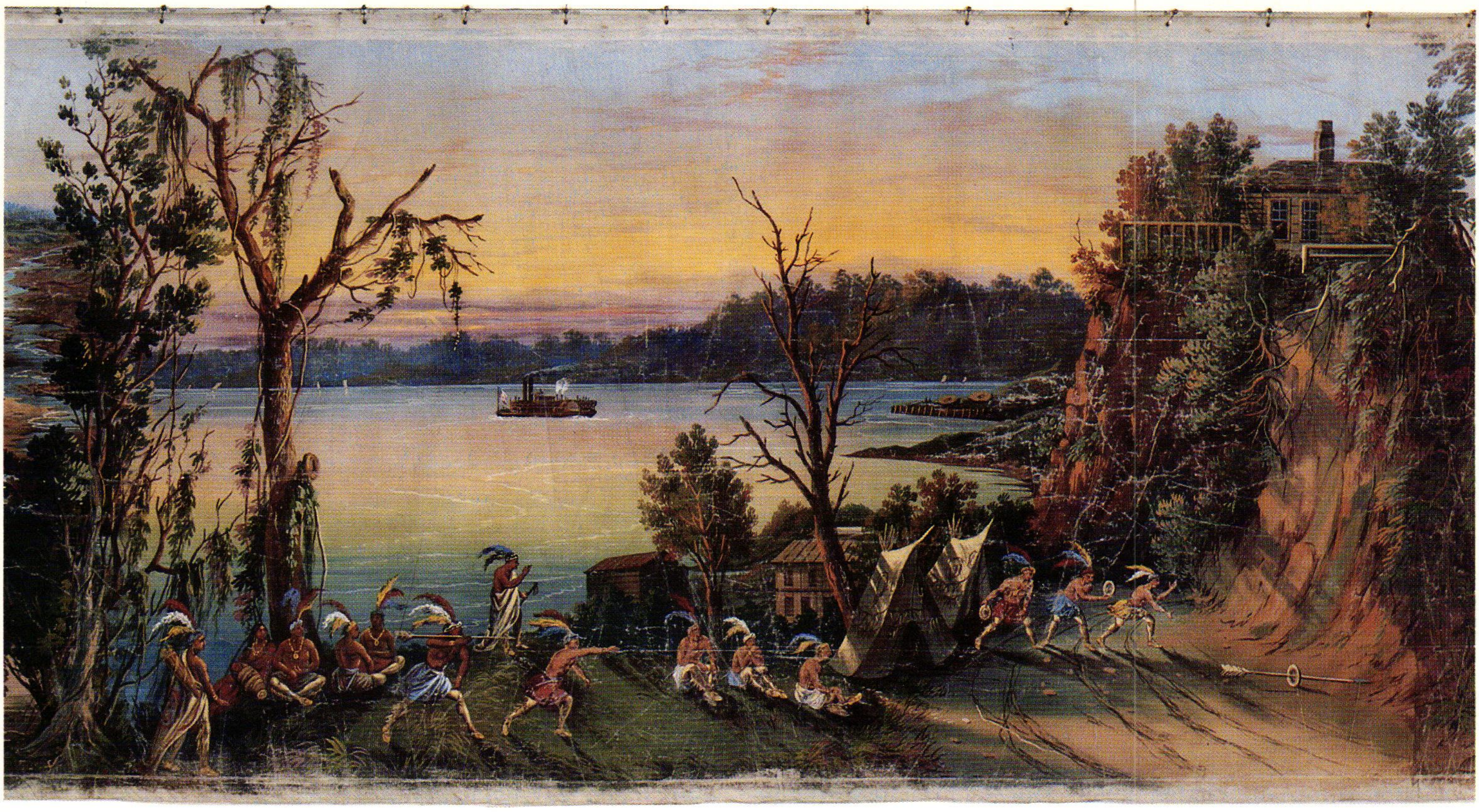
A contemporary handbill that advertised the Panorama informs us that "each view and scene is taken from drawings made on the spot" by the good doctor. There is reason for doubt: the all-inclusive painting depicts the 1542 burial of de Soto, discoverer of the river; the 1792 Indian massacre of the French at Fort Rosalie; and the unlikely sight of the Rocky Mountains in white-capped glory as a background to St. Charles, Missouri! Evidently, enthralled patrons who paid 25 cents to experience the wonders of the Panorama and Dickeson's collection of Indian curiosities were not troubled by such inconsistencies. After all, passing before their eyes was an America that most of them could never hope to see first-hand.



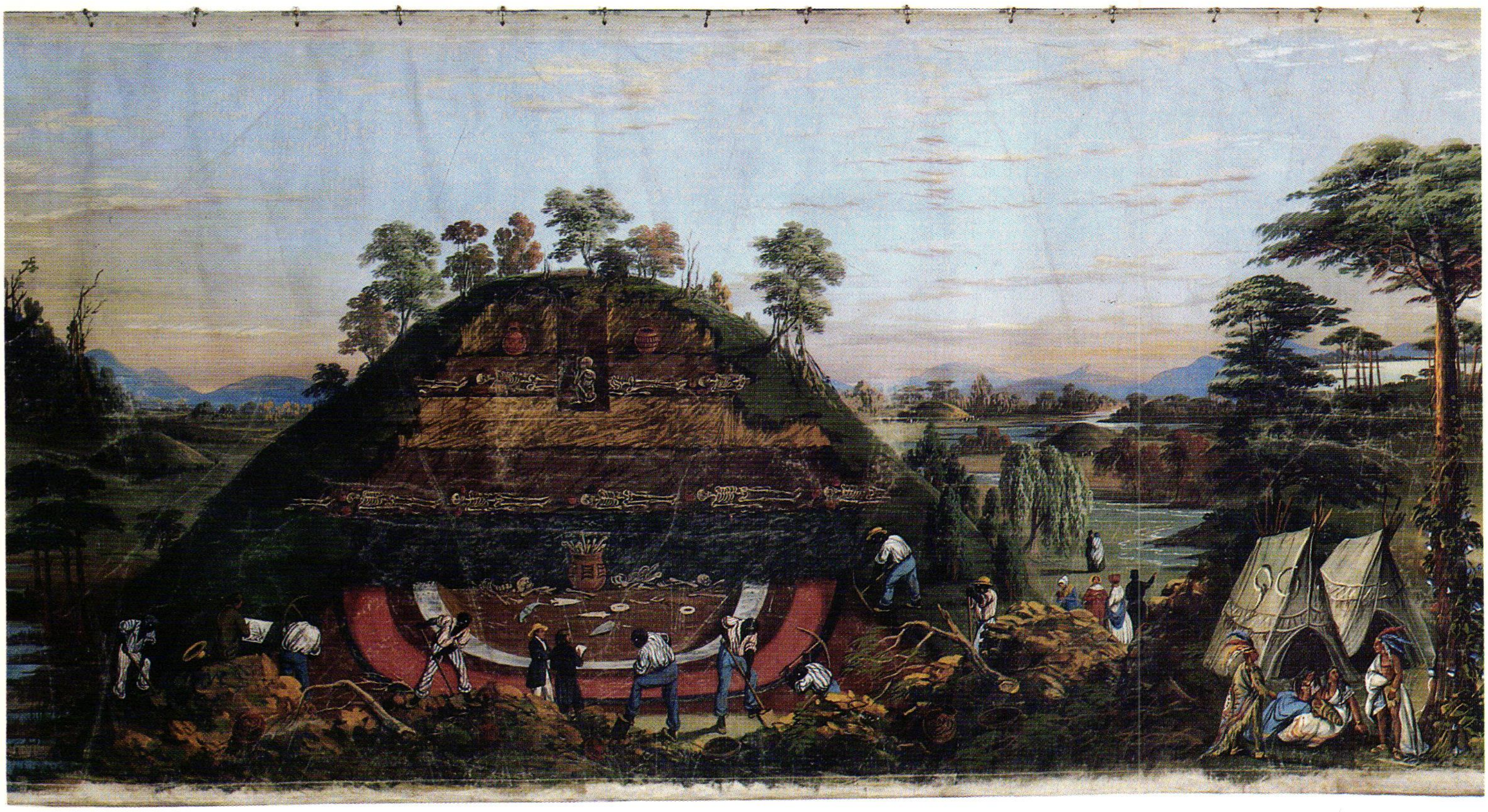
In this scene, Egan depicts a man being chased by a pack of hungry wolves. The terrified victim, hair standing on end, runs for the safety of his small log cabin.



Eighteen miles above Natchez, seven conical Indian mounds bordered the Mississippi; the largest of these was 56 feet high. In 1831, the steamboat Magnolia, shown in the foreground of this panel, went 300 miles upstream from New Orleans to Natchez in 19 hours, 50 minutes.



This panel describes a Choctaw Indian game called Hungo Wan in which cane javelins are thrown at stones rolled along the ground. The object of the game is to put the lance through the opening in these special stones that are carefully selected and treasured by the tribe.



Exploration of a mound was initiated by cutting a vertical shaft from the top through the various layers of earth. In this way a time sequence was revealed that indicated the kind of materials contained within the mound. In the left foreground of this panel, the artist drew Dr. Dickeson recording scientific observations in his notebook.

From the Ideal to the Real

Martin Friedman

No single style characterized the 19th century artist's view of the Mississippi. Many approaches coexisted, each indicative of the directions of American art at the time, but most of these painting styles were variations on the Hudson River School pastoral, an idealizing, moralistic conception of nature. This attitude exalted the new continent's wilderness as a rediscovered paradise and many itinerant artists, in their search for exotic themes, were attracted by the mythic landscapes of the Mississippi Valley.

The earliest depictions of the river by explorers and military missions documented its surrounding terrain, animal life and vegetation with wonder and fidelity. Letters and diaries from early travelers sometimes included sketches of its scenic features. Seth Eastman's intimate watercolor sketches, which date from 1830 to 1848, are microcosms that illustrate the relationship of human life to the river. In their small size and all-inclusive imagery, these represent a descriptive view. Eastman, an army officer attached to Fort Snelling, at the juncture of the Minnesota and Mississippi Rivers, was an indefatigable chronicler of Indian life of the region. At West Point, he was given training in academic drawing; such study was routine for future officers who were expected to describe military expeditions in which they were involved. Eastman's studies of Indian life were in large measure inspired by his wife's writings about Sioux legends, and many of his watercolors serve as illustrations for these; other Eastman studies of Indian tribal life were for larger oils, some of which hang in the Longworth Building in Washington, D.C. In technique, the sketches vary from relatively loose closeups of figure groups to tightly defined panoramic vistas in which figures are barely visible. In Eastman's art, the river is a constant presence, depicted as a wide body of water or as an expanse of marsh.

Another enthusiastic recorder of the wilderness was George Catlin, whose hundreds of Indian portraits and oil vignettes of tribal life memorialize this vanishing era of native American culture. A Philadelphia lawyer turned successful miniaturist painter, Catlin made his first trip west at the age of 34, accompanying General William Clark (the Clark "half" of Lewis and Clark) on a treaty-making mission to Prairie du Chien and Fort Crawford on the upper Mississippi. Soon he was imbued with the desire "to rescue from a hasty oblivion a truly noble and lofty race" and devoted his life to painting and writing about the Indian nations. He allegorized daily events in his faithful portrayals of episodes of Indian life, sometimes incorporating the river landscape as a background. In his vivid, spontaneous style, Catlin produced a commemorative series of paintings about the voyage on the upper Mississippi led by Father Hennepin, who a century and a half earlier served as chaplain for the La Salle expedition that explored the great river.

One of the most persistent, individualistic documenters of river life was John James Audubon, who, with encyclopedic zeal, made explicit drawings and watercolors of the birds that inhabit the lower Mississippi Valley. His work, however, can hardly be considered an indigenous manifestation; the only thing American about it was its subject matter. Born in Haiti of French parents, Audubon had art training that included a sojourn in France where he studied neoclassical draughtsmanship, reputedly with the master himself, Jacques-Louis David.

In super-size portraits of river birds, Audubon focuses on their contour and the patterns of their plumage, with minimal attention to backgrounds, except for some rendering of tree branches and other vegetation. This was a highly selective, hermetic recording process in which the river, as the sustainer of such exotic life, is usually the invisible presence.

However, neither the tribal life sketches of Eastman and Catlin nor Audubon's classicized natural history were concerned with the symbolism of the Mississippi—the river was incidental in their art. It was not a fully realized entity until the spread of the Hudson River style, which by mid-century was ubiquitous. This style synthesized the romantic and classical tendencies that, for some 50 years, dominated American landscape painting. Its immediate sources were in the Academy of Dusseldorf, a mecca for many American artists and, later, in the *plein air* approach of the French Barbizon artists who painted directly from nature. These styles overlapped: the Dusseldorf landscape emphasized structure and precisely rendered detail, while the French approach was more atmospheric. The Hudson River style was pantheistic and the artist "lost himself" in nature's limitless and self-renewing expanse.

The peripatetic Albert Bierstadt was a transmitter of the Dusseldorf style, especially its predilection for the Italianate *campagna,* which became the prototype for his glowing American landscapes. Bierstadt wandered the country in search of picturesque themes, making on-site sketches, oil studies and stereographs (a rudimentary form of photography), which provided the subject matter for monumental paintings. In *The Falls of St. Anthony,* a painting by Bierstadt that has recently come to light, the rushing water, lush vegetation and luminous sky form a backdrop for the small figures in this fantasy, a work that is well within the Hudson River orthodoxy.*

Regional variations on this approach were many. This exhibition contains two paintings by the relatively unknown artist Ferdinand Richardt. Born in Denmark in 1819, he lived in New York between 1850 and 1859, and within that period produced a group of Mississippi River landscapes, including two views of St. Anthony Falls. (A third work, which shows the Mississippi from north of St. Anthony Falls, is now in the White House collection. Exact dates of Richardt's visit to Minnesota have not yet been established.) In these horizontally-oriented compositions, buildings that border the falls are depicted as simple, cubistic shapes reminiscent of the elemental structures in the background of early Renaissance paintings. These radiant pictures represent a fine balance between description and abstraction.

By contrast, the same view in Alexander F. Loemans's *St. Anthony Falls* is a return to elemental nature. The turbulent water and twisted trees, hallmarks of Expressionism, are generalized and there is little sense of locale. On the basis of available information, it appears that Loemans's ardent personification of the Falls was painted in 1877, well after this natural wonder had been intruded upon by the presence of the town. Until the record is clarified, we can regard this as an imaginary landscape, based, perhaps, on previous conceptions of the site by other artists.

If such landscape painting helped establish the Mississippi River in the national psyche, one could identify with the river more intimately through the carefully composed genre paintings of George Caleb Bingham, the ultimate chronicler of the Missouri and the Mississippi who immortalized boatmen, trappers, fishermen, roustabouts and other river characters. From detailed sketches of these subjects he developed impressively organized paintings. The spontaneity of the brush and ink studies was succeeded by the formality of the final painting, as immediacy gave way to stasis. However descriptive, Bingham's compositions are fastidious abstract arrangements of forms in space. His populist scenes have more than a hint of 17th century European sources—via Dusseldorf, again—Dutch genre is a visible influence, as is the sculptural underlying structure of Poussin—but these carefully described habitues of the river are unmistakably American. Bingham's river paintings reveal a world untroubled by temporal concerns. They were a contemporary glorification of the populist vision of America.

Even though there is little evidence of the development of local "schools" along the Mississippi, some artists had their disciples. Henry Lewis based many lithographs in his celebrated book *Das Illustrirte Mississippithal* on Seth Eastman's sketches, which he used with little modification. By contrast, his finely delineated painting, *View of St. Louis,* is a personal variation on the popular panoramic city view. Its translucent architectural forms relate it more to 18th century Venetian painting than to Eastman's illustrative approach. Bingham was especially well regarded by fellow artists, as evident in Charles Wimar's *Flatboatmen on the Mississippi* whose adaptation of the latter's *The Jolly Flatboatmen* is implicitly an homage to him.

Fort Snelling shared honors with St. Anthony Falls as a favorite theme of painters of the upper Mississippi. It has the presence of a medieval citadel in Alexis Fournier's large horizontal painting of 1888. A native of St. Paul, Fournier produced a

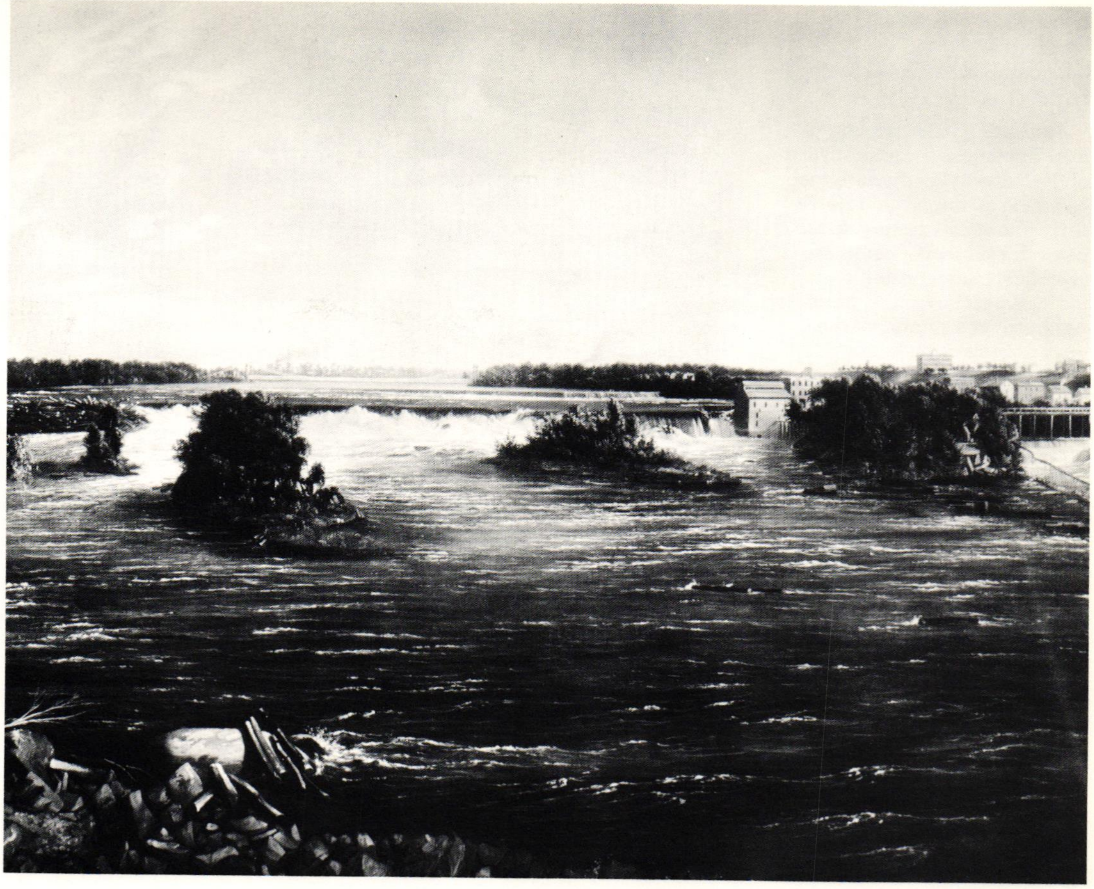
Ferdinand Richardt
St. Anthony Falls, 1857-58
Collection: Minneapolis Club

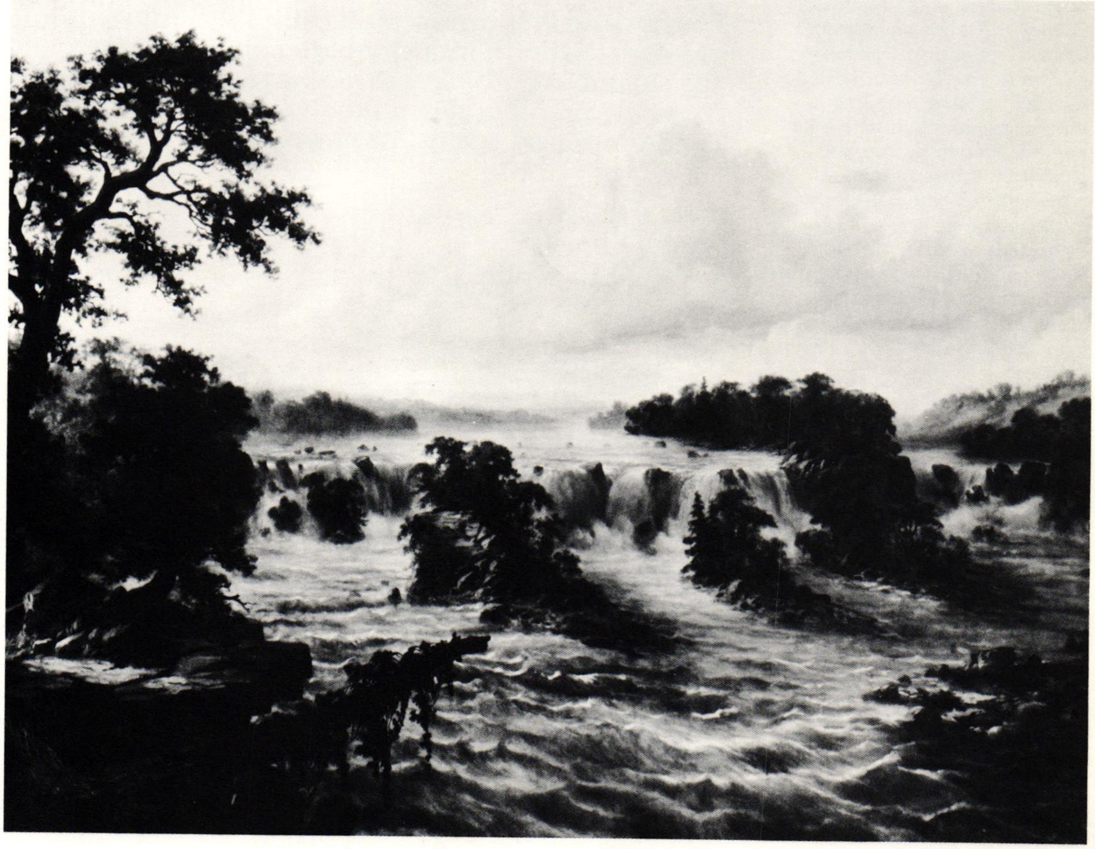
Alexander F. Loemans
St. Anthony Falls, 1877
Collection: Minneapolis Club

The Falls of St. Anthony, some 200 miles from the source of the Mississippi River in northern Minnesota, invariably engaged the attention of the artists who lived along its banks or traveled the great river by steamboat. In their primal state, the falls were an impressive natural sight, a turbulent episode in an otherwise placid stretch of water. Among the itinerant artists who portrayed them were Ferdinand Richardt and Alexander F. Loemans. Little information is available about the precise time of their respective encounters with this scenic wonder but their reactions to it, strikingly individualistic, represent two aspects of the dominant mid-19th century landscape style: the romantic depiction of untamed wilderness and the precisely rendered vision of nature as the symbol of order.

Danish born Ferdinand Richardt, lured to America by the prospect of painting Niagara Falls, produced his Mississippi River vistas between 1857 and 1858. In these views of the Falls, Richardt's meticulous brush gives equal attention to every element depicted. The composition is supremely controlled—it is an eternalizing view in which nearby and distant forms are seen with equal clarity. Richardt's ability to reveal the landscape's minute features and reflect its vastness is distinctive; color is used to amplify details as well as to build solid forms. In this tranquil landscape, the encroachment of industrialization in the form of mills, factories and the first suspension bridge across the upper river does not threaten the idyllic prospect.

While Richardt took special care to assure us of accurate transcription, Alexander F. Loemans superimposed his fantasized conception of the Falls over their real nature. His glowing, imaginary view is in the tradition of the Hudson River School pastoral. The brush work is loose, the forms are generalized. In his painting, Loemans has created a forested area in which light, water and sky share a common destiny. This is a conception of nature in its primal state, except for the ruin-like rock formations, which hint at human intrusion.



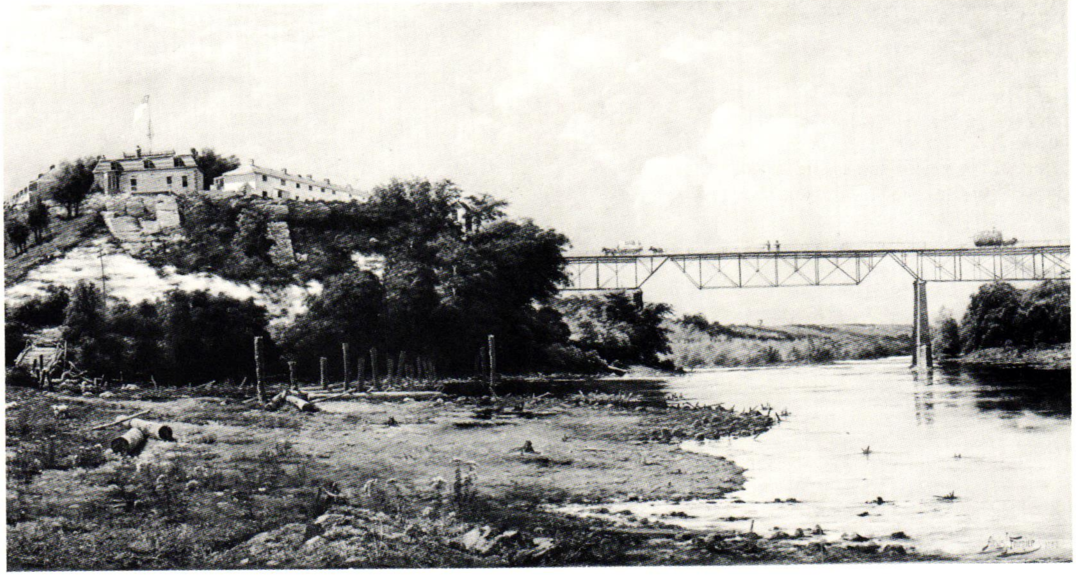


large body of drawings, oils and watercolors of the Minneapolis/ St. Paul area. His style evolved from heavy, expressionistic treatment of landscape to static representations of extensive vistas, of which the Fort Snelling picture is an excellent example. He identified with the French landscape painters and, in 1893, traveled to Paris to enter the Academie Julien, where he came under the sway of the Bingham master, Henri Harpignies.

Inevitably, the mid-19th century utopian dream gave way to new conceptions about the river. The American artist was not immune to changing social conditions. After the Civil War, heavy industrialization began the radical transformation of the Mississippi. Expanding lumber and flour milling in the North, fur trade and shipping in St. Louis and vastly increased river traffic provided new subject matter. The steamboat, which had evolved into grandiose floating wooden architecture, became the river's unifying symbol. A favorite subject of writers such as Twain and Melville, it attracted generations of painters and printmakers. The Currier and Ives artists practically created a national industry based on the steamboat, which they portrayed in stately progress down the river or racing furiously against its rivals.

New Orleans was a haven for artists, many of whom painted steamboat views for local patrons. Among these was August Norieri who became a "little master" of this subject. Most of Norieri's paintings are profiles of single boats against level, uncluttered horizons,but in this exhibition, *The Natchez Bound Down the River at Night,* with its dramatic moonlit sky, is a departure from his austere approach.

One of the most impressive responses to this theme is Hippolyte Sebron's *Giant Steamboats at New Orleans.* One of Daguerre's disciples, Sebron made an oil sketch of this subject in 1850 during his travels in America, completing the larger version three years later. While the small painting is almost impressionistic in its spontaneous use of color and light, the large work is extremely controlled. Its relationship to photography is worth noting: all forms are defined with equal clarity and photographic close-up techniques, such as "cropping" objects in the foreground, bring the observer directly into the picture. In this complex work, such technical devices are not intrusive and this warm-toned painting is an atmospheric characterization of the dockside scene.

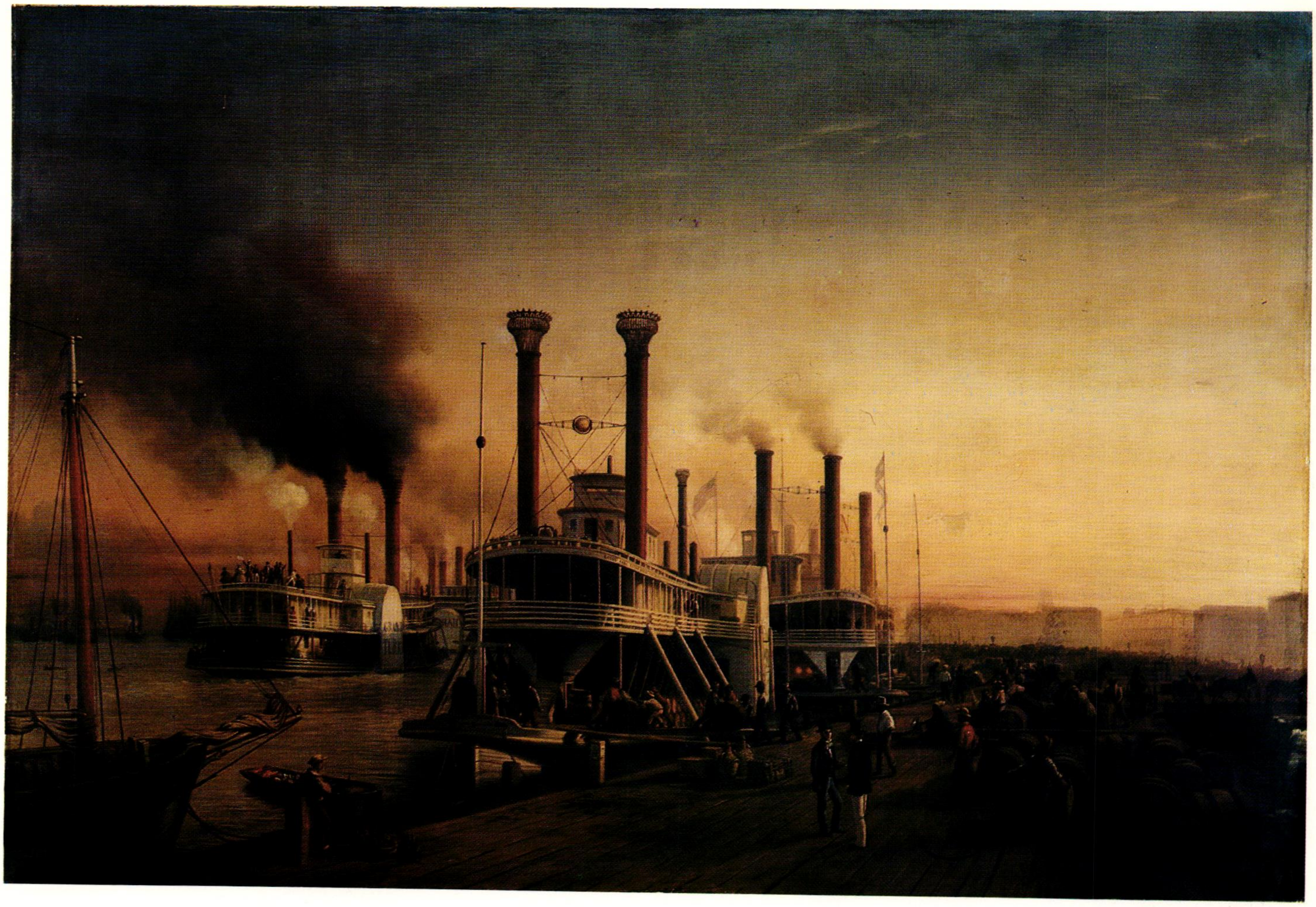


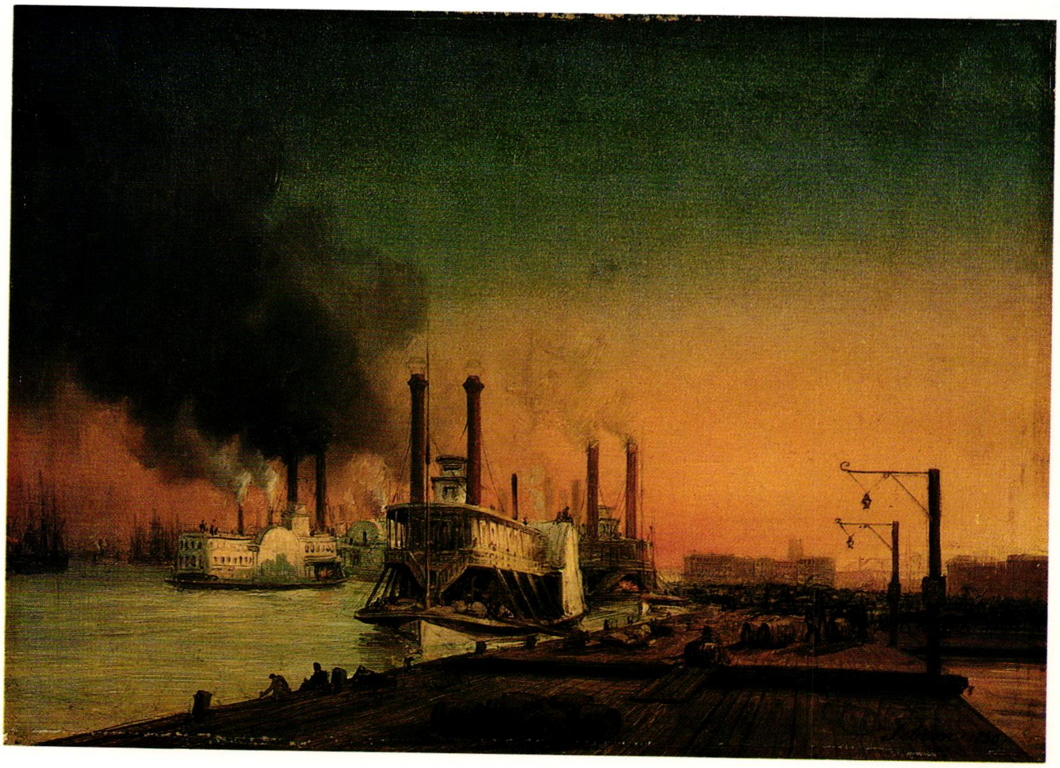
Alexis Jean Fournier
Fort Snelling, 1888
Collection: Minnesota Historical Society

Fournier's 1888 painting of Fort Snelling is a classical view of the venerable structure that had such an important role in early Minnesota history. It has been the subject of countless sketches, paintings and photographs, and over the years has become a symbol of the upper Mississippi. In this version of the celebrated theme, the artist has selected a view of the fort, seen from below, that contains a range of forms and activities. The massive stone building, the cast iron bridge and the river itself are formal elements carefully located on a horizontal axis.

Fournier has isolated a small section of a larger, continuous vista in which the rendering of objects is highly naturalistic. His interest was apparently in representing, with considerable technical skill, the diverse textures inherent in such sweeping vistas. His conception of the fort and its surrounding terrain takes the form of rational reportage, as opposed to dramatic interpretation.

A native of St. Paul, Fournier was a student at the Minnesota School of Art. He supported himself as a sign and scenery painter in his youth. In 1893 he traveled to Paris, enrolling in the Academie Julien where he met the French Barbizon painter Henri Harpignies, whose art remained a lasting influence on his work. Fournier's admiration for the Barbizon outdoor mode of painting is reflected in this direct, literal characterization of the Fort Snelling theme.



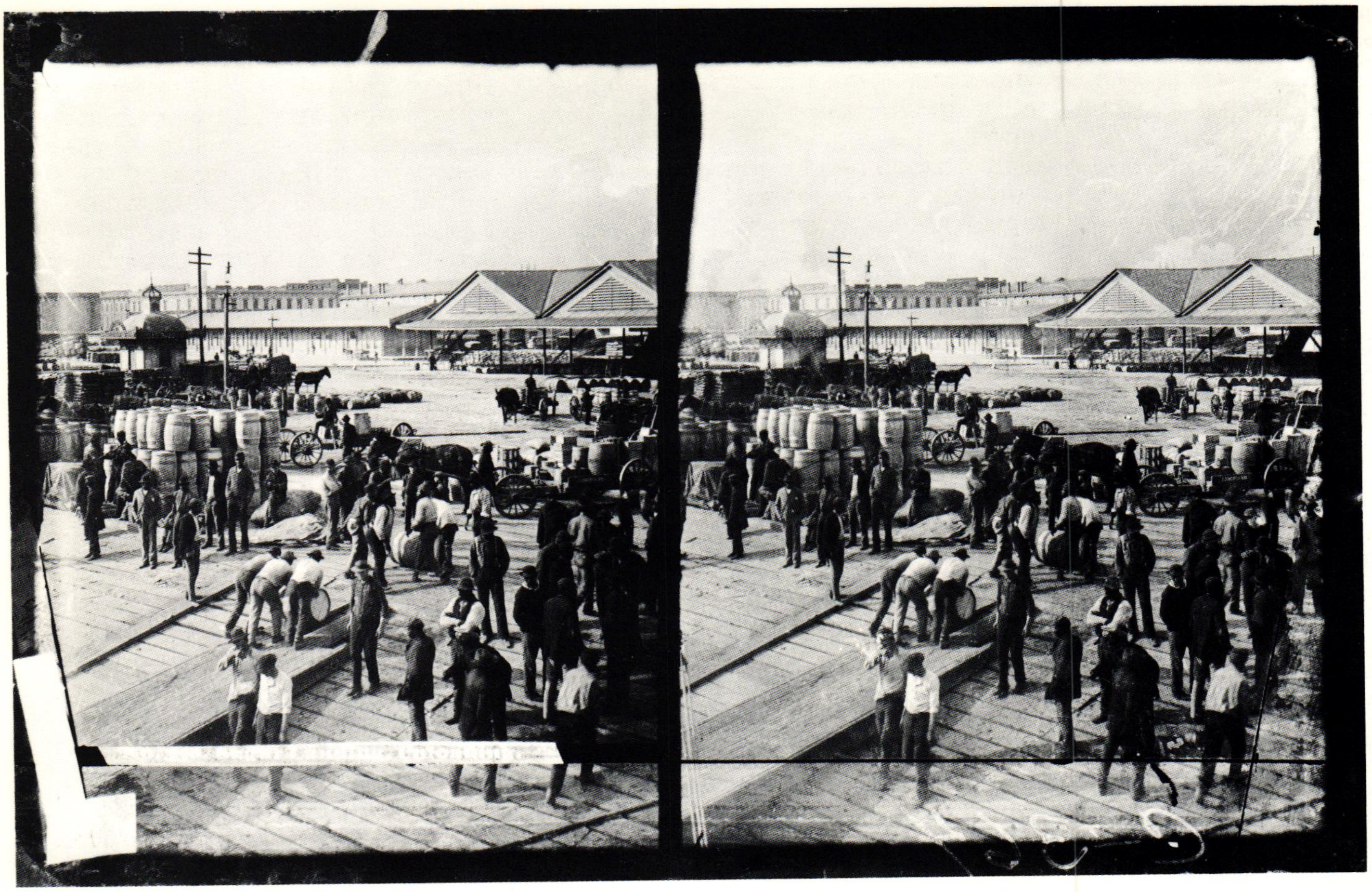


Hippolyte Sebron
Giant Steamboats at
New Orleans, 1853
Collection: Tulane University

sketch for *Giant Steamboats*
at new Orleans, 1850
Collection: The Historic New
Orleans Collection

Among many French artists attracted to the exotic southern port of New Orleans in the mid-19th century was Hippolyte Sebron, a disciple of L. J. M. Daguerre, who had established himself in Paris as a painter of dioramas. *Giant Steamboats at New Orleans,* 1853, is a brilliant evocation of the levee in late afternoon, the customary departure time of the great boats. This monumental painting reflects Sebron's cool perception of bustling dockside activity.

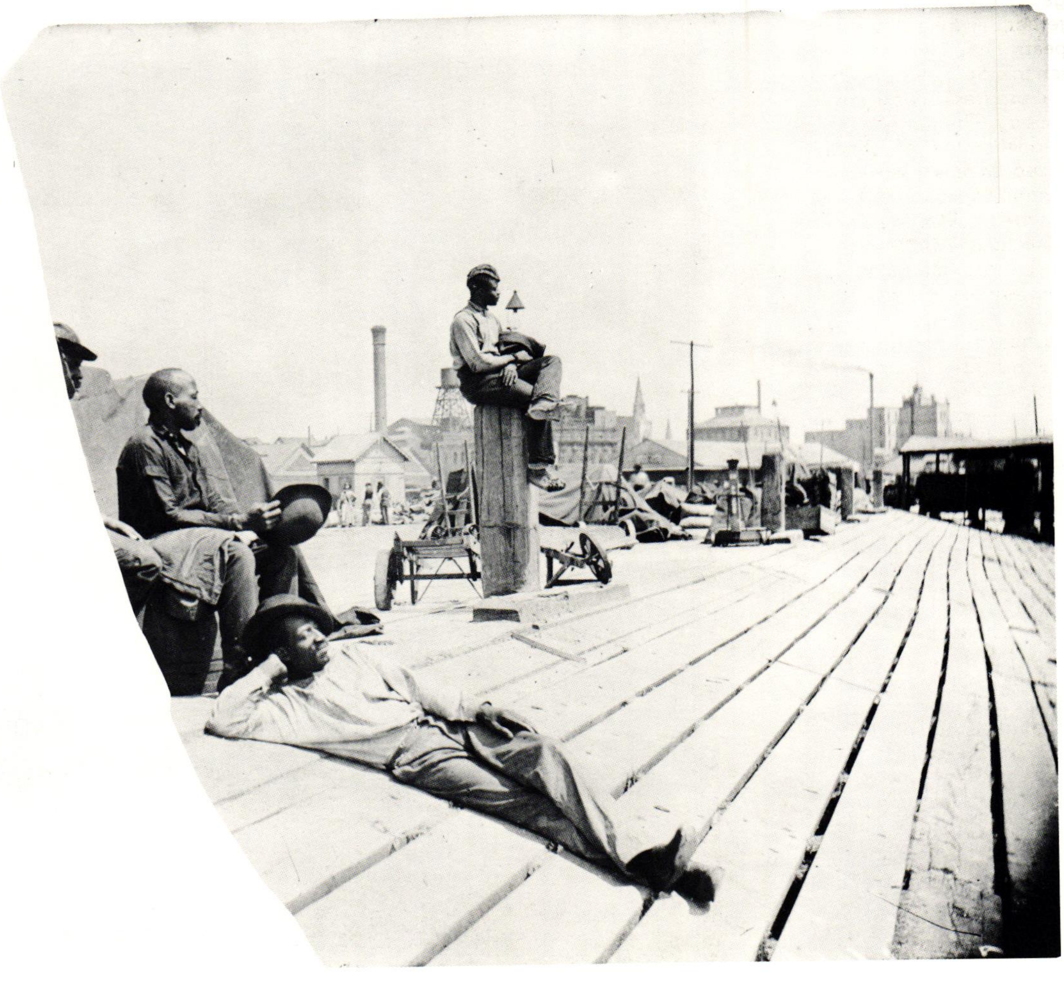
The painting is based on Sebron's small oil sketch executed in 1850. While the final work is more highly finished and compositionally complex, it nonetheless retains much of the freshness of the sketch by its Turneresque handling of light and color and near impressionistic rendering of carriages and buildings silhouetted in the distance.



George François Mugnier

The work of George François Mugnier, who documented so many facets of New Orleans life, illustrates the increasing importance of photography as a narrative and artistic form at the turn of the century. In 1894, at the age of 18, he opened a commercial photography studio. He regarded himself as a generalist and in Soard's New Orleans City Directory was listed as a "Landscape Photographer, Publisher of Stereoscopic and Graphoscopic Views of Louisiana Scenery, New Orleans and Vicinity."*

After the failure of this enterprise four years later, he worked at a variety of jobs, including clerical duties at the New Orleans branch of the U.S. Mint, photo engraver and auto mechanic. Mugnier's interest in photography persisted and soon was directed toward a populist form of documentation. He portrayed the people of New



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*John J. Kemp and Linda Orr King, eds., *Louisiana Images 1880-1920, A Photographic Essay by George François Mugnier,* introduction by editors, Baton Rouge, published for the Louisiana State Museum by Louisiana State University Press, 1975, p 1, intro.

Orleans individually and in groups, in compositions that implicitly described their societal roles.

In much of Mugnier's work, the river is a dominant force, whether it is actually seen, or its presence merely implied. Mugnier's 1895 stereopticon photograph, *Sugar Landing, Unloading,* is a richly textured description of dock life. Its groups of figures, some working, others idle, characterize the activity of the levee. However, Mugnier removed himself from too close an involvement in such scenes. He documents the activity dispassionately, attempting to crowd a number of events into a small frame.

The Mugnier prints in this exhibition were made by Stephen J. Duplantier with a process precisely described by him in the publication *Louisiana Images, 1880-1920:*

> Silver chloride printing-out paper (Studio Proof) was the natural choice for printing the negatives. The self-masking property of the printing-out paper helped save the shadows from total darkness while permitting the overexposed areas to print in. Studio Proof paper prints itself, as the silver chloride on the paper darkens without a developer. When the negative and paper are placed together in sunlight, the image appears. The paper does not know when to stop; therefore occasional progress checks are necessary. The prints are completed when the shadows are bronzed. In most cases the minimum exposure time was about ten minutes in a hot morning sun. The longest required more than five hours of constant exposure to sunlight.
>
> Washing and toning are the next steps. The toning bath consists of dissolved 24k gold in Aqua Regia (nitric and hydrochloric acid). This solution produces chlorauric acid which is diluted with water and added to a sodium thiocyanate solution. The toning takes about five to ten minutes in a motorized drum. This treatment adds a gold coating to the silver salts on the paper. It also changes the red-purple color of the printing-out paper to a brown purple. Fixing stops further light action on the paper. The process is complete with the final washing and drying of the print.

The river provided inexhaustible subject matter for sketch artists whose work was quickly translated into engravings for illustration in newspapers and periodicals. One such artist-correspondent was the New Orleans illustrator A. R. Waud, represented in this exhibition by a group of pencil and chalk drawings made between 1866 and 1872. Waud's quick impressions of the lower Mississippi had wide distribution. These reported on a wide range of events in Louisiana in which the river is omnipresent. Waud described floods, ship sinkings and other catastrophes. Translated by his silent collaborators, the engravers, into precisely defined images, these sketches found a ready national audience in the pages of *Harper's Weekly* and *Every Saturday.*

The shift to realism in the late 19th century was accelerated by the increased use of photography. Once removed from the studio's hermetic surroundings, the camera was no longer the preserver of the *status quo.* The photograph, as a form of explicit naturalism, became a comprehensive means of documenting the river and recorded the growth of its towns and the life within them. From the 1860s through the early 1900s, the panoramic town photograph was a prevalent form. These pictures were made by all-purpose photographers rather than specialists, who in the course of their work also made pictures of local scenic wonders and, through their portraits, immortalized the local gentry. One of the finest of these photographers was George François Mugnier whose vast output included numerous images of life along the Mississippi in New Orleans at the turn of the century. Mugnier was as energetic as he was curious; he left an eloquent, comprehensive record of the city's existence. In addition to pictures of plantation life and city streets, he photographed steam packets, roustabouts lolling on the dock and fishermen in the bayous.

By the end of the century, the river had become more the province of photographers than painters. Eastman's descriptions of Indian encampments along its shores, the reveries of the transplanted Hudson River artists and Bingham's preserved-in-amber genre scenes remain its definitive portrayals. While artists have continued to respond to the river in a succession of international styles, in painting, the Mississippi remains a 19th century image.

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*Gordon Henricks, author of *Albert Bierstadt: Painter of the American West,* has recently examined this painting and considers it to typify Bierstadt's production in the 1880s.

American River Prints

Philip Larson

Philip Larson, formerly Curator at Walker Art Center, is Associate Professor, Division of Liberal Arts, Minneapolis College of Art and Design. Dr. Larson is a contributing editor of *Print Collector's Newsletter.*

In the early 19th century, the Mississippi River Valley was the gateway to frontier America, separating the sophisticated, settled East from the unknown, romantic West. The post-Civil War industrial boom dramatically altered the river's primeval state, but its popular mythology continued along lines set by Audubon's images of birds, by Fanny Palmer's riverboat pictures for Currier and Ives, and by idealized views of river towns. Its valleys, farms and wildlife inspired an enormous body of colored prints which hung in thousands of American homes. For 50 years wood engravings made nationwide news out of disasters, floods and social events on the river. Images of the river evoked westward expansion, independence and the uniting of a vast continent. But by the turn of the century it was all over. Photography and high-speed offset printing replaced handcrafted illustration. Trains replaced riverboats as symbols of scenic travel. Sprawling industry and uncontrolled hunting pushed many of Audubon's exotic water birds into inaccessible areas, driving some to near extinction. Sawmills stopped for want of timber, new flour mills were located in prairie railroad towns and river banks became shanty towns and garbage dumps. What the river looked like during its great era, and what it meant to a nation wildly in love with its landscape was recorded in hundreds of prints.

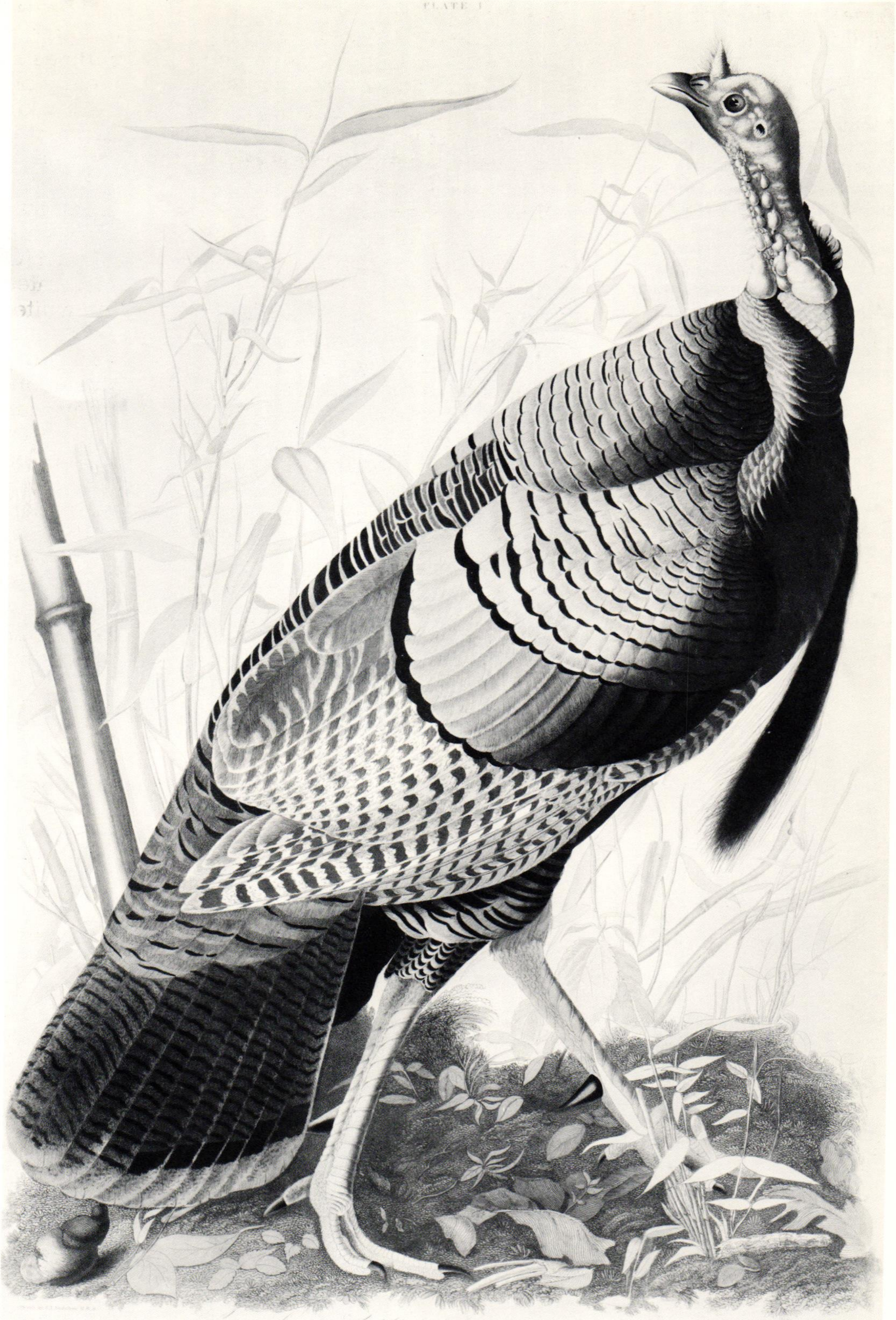
John James Audubon was the first American to extract specific images from his river travels and make art of them. In 1820 he conceived the most ambitious printmaking project of 19th century America: the four volume, 435 plate *Birds of America.* He had followed birds since his youth and after studying in Paris spent ten years in Kentucky and Ohio, training himself in natural science and illustration. He experimented with bird banding, then devised a system for supporting and drawing specimens in life-like positions. On a boat trip between Cincinnati and New Orleans he sketched birds as he encountered them, along the broadest and most widely trafficked migratory corridor in the world. He headquartered in New Orleans for six years and, assisted by his two sons, collected and drew hundreds of specimens from the delta region. He traced their outlines and colored eyes and feet rapidly before they faded in the freshly killed bird. Trekking into backwaters and swamps, Audubon claimed his task had been "allotted to him by nature." He knew he would probably be the last to witness and record many species in their natural haunts. (Of the river birds Audubon celebrated in his *Birds of America,* the white ibis was nearly extinct by 1900, but has made a good comeback, while the whooping crane is still an endangered species, and the trumpeter swan needs careful protection.)

Audubon hoped that his work would find immediate acceptance when he left for Philadelphia in 1824 with the finished studies, but publishers there had already committed themselves to Alexander Wilson's *American Ornithology.* In London in 1826 he met a superb illustrator, Robert Havell, who set up a shop to produce the project. Havell and his son Robert Jr. engraved, etched and aquatinted the plates. Over 100 trained colorists added watercolor and tempera in close imitation of Audubon's original paintings. The likeness of the prints to the originals was a superb technical accomplishment, since the drawings were eccentric mixtures of pen, pencil, pastel, oil, tempera and watercolor. The finished sets cost 1,000 dollars, and Audubon returned to America several times to seek additional species and to secure subscribers.

Audubon had no acquaintance with Japanese art, but in France he could not have missed the elegant "S" curves and *chinoiserie* of the French Rococo, a style that Neoclassicism never fully supplanted. His great skill at inventing flat, curvilinear design led him to portray birds with the neck, legs and body pressed into nearly the same plane. Creatures turn to form picturesquely curving, sinuous shapes on the page. This is particularly true of the Mississippi River water fowl, and Audubon's journals make many references to the strangely twisting necks of swans and herons. In the bird prints, backgrounds are skillfully designed after nature, or, are left out entirely to allow the white of the page to isolate the subject. This

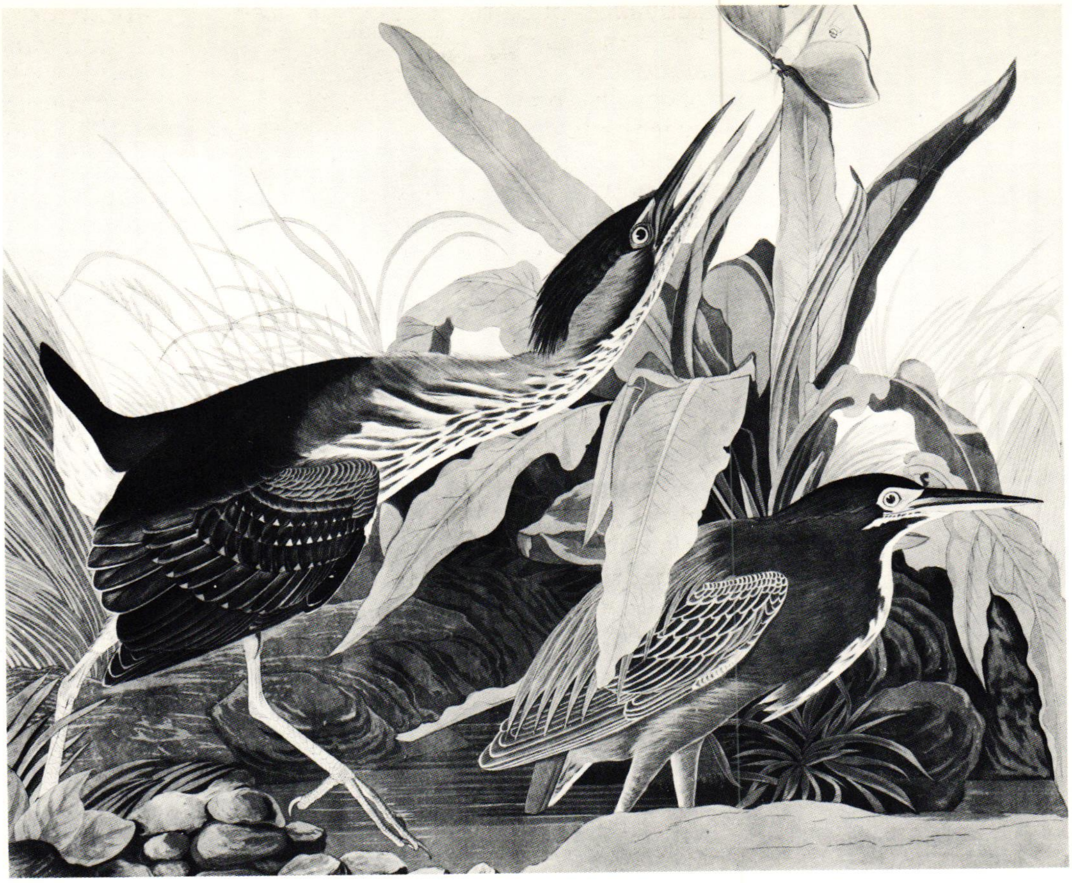
John James Audubon
Wild Turkey Cock, circa 1827
Collection: The St. Louis Art Museum

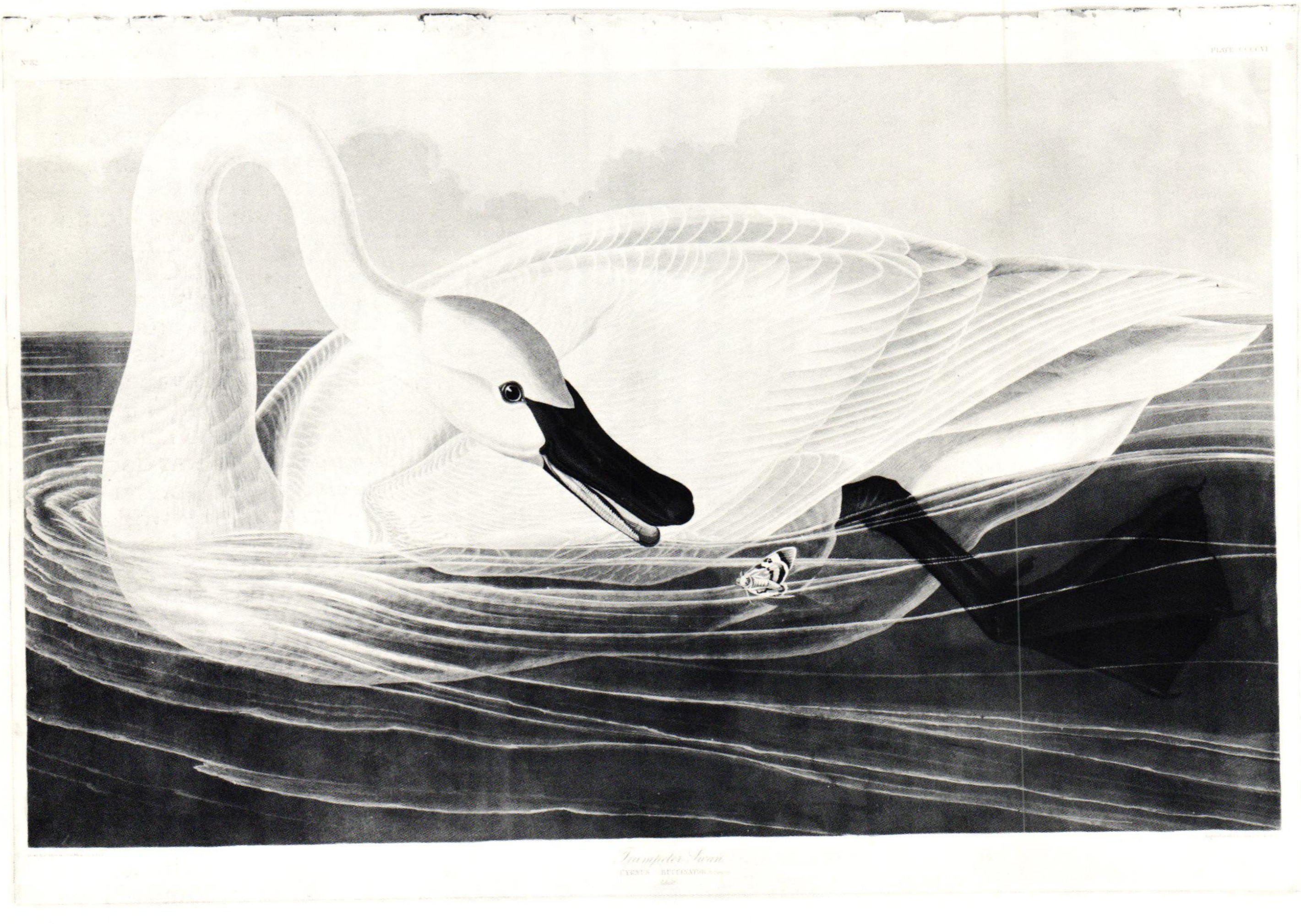
This plate is the first of the original 435 plates in the first edition of Audubon's *The Birds of America*, published in London between 1827 and 1838. Based on a watercolor by the naturalist, this hand-colored aquatint engraving was executed by William H. Lizars, Edinburgh.



John James Audubon
Green Heron, 1836;
Trumpeter Swan, 1838
Collection: Louisiana State Museum

Audubon originally issued subscriptions to *The Birds of America* in 87 parts of five plates each. Plate 333, which depicts an adult male and a young green heron, was engraved by Robert Havell, Jr. and appeared in the 62nd part of the series. *Trumpeter Swan,* plate 406, also engraved by Havell, appeared two years later in the 82nd part of the series.





activation of blank space could also have an obscure oriental source, since it has been a common feature of scrolls and screens since antiquity, as is the lowered, ground level viewpoint. On the other hand, these are not nature scenes; they are portraits, and like most portraiture of the time, background is frequently remote or schematic.

Audubon's bird pictures are emotionally cool, but always show the creatures as active and keenly intelligent. This separates them from the great hoard of sentimental, anthropomorphic portrayals of animals common in Victorian Europe and America, and allows us to concentrate as much on the plumage as we do on the bird's posture. Nearly every pose suggests the bird is motivated by a specific purpose. Audubon's text accompanying the plates emphasizes the creature's instinctual behavior. He writes of the white ibis:

> Its unusual mode of procuring food is a strong proof that cunning enters as a principal ingredient in its instinct. The cray-fish often burrows to the depth of three or four feet in dry weather... The bird... walks with remarkable care towards the mounds of mud which the latter throws up and breaks up the upper part of the fabric, dropping the fragments into the deep cavity... The ibis retires a single step, and patiently waits... The cray-fish... instantly sets to work anew, and at last reaches the entrance of its burrow, but the moment it comes in sight, the ibis seizes it with its bill.

Audubon makes certain value judgments throughout *Birds of America* and the larger Mississippi River fowl are heroically positioned before complex foliage, sky and water. Exotic species are always given fuller narrative than the small brown or tan shore birds, and ducks are commoners in the midst of aristocratic swans or cranes. Audubon's prints give these birds a dignity and stature rare among people who regarded river birds as easy targets for hunting or hat decoration.

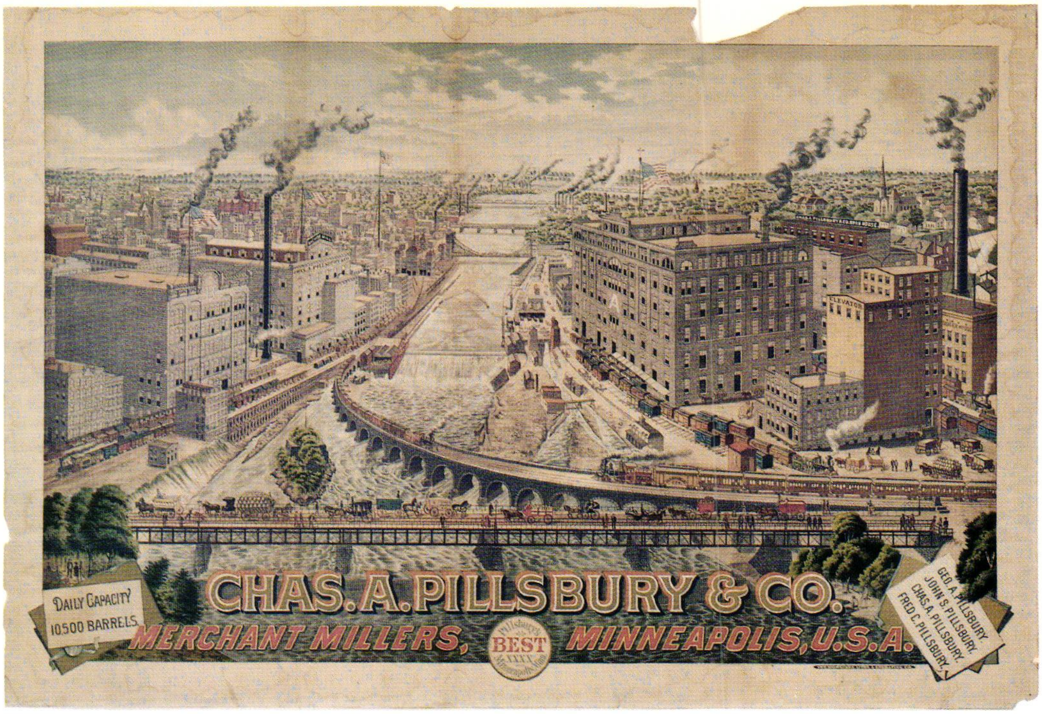
Audubon died in New York City in 1851, where coincidentally, a year later, James Merritt Ives joined the lithography publishing firm of Nathaniel Currier. They formed the most famous partnership in American art history. Their letterheads read, "The Grand Central Depot for Cheap and Popular Prints" and "Colored Engravings for the People." Currier and Ives lithographs captured, if not actually created, a mythology of the Mississippi River. Its staff did not have Audubon's European background, his taste for the aristocratic print, or even his interest in scientific veracity. They were commercial artists who drew material from newspapers, gossip and ordinary illustration. When "name brand" artists like George Inness, Thomas Nast, or John Cameron were used, it was usually to reproduce one of their oil paintings.

Most of the Mississippi River prints were drawn on stone by the English immigrant Fanny Palmer, who worked with Currier and Ives from 1850 to her death in 1864, a period of time that spanned the naval battles of the Civil War, the building of great riverboats and the national drive to settle west of the Mississippi. She was a landscape specialist, often adding background to the work of other staff artists and for New York subjects she often made her own sketches, using both sides of the paper and a soft pencil. We don't know if she ever saw the Mississippi River and she probably relied on sketches sent from the Louisiana Territory for her prints of paddlewheelers, ironclads, flatboats and trains.

Fanny Palmer was also a highly skilled colorist and she painted many production line models. Color lithography was virtually unknown and all Currier and Ives prints were black and white lithographs pulled from single stones of Bavarian limestone, then hand-colored. The success of the operation relied on incredibly cheap labor. Coloring was done by a crew of twelve young women, usually of German descent, who worked at a long table from a model set in the middle. Each woman did only one color, then passed it on, and the finisher touched up. For rush jobs the drawing was made on several stones and printed at once. Extra help was called in and stencils used to hurriedly apply colors, with the regular girls all touching up. Even with all this hand work, Currier and Ives could have a print on the streets in three or four days or about as fast as the wood engravers who worked for *Harper's Weekly*. Some of Fanny Palmer's larger, more detailed works,

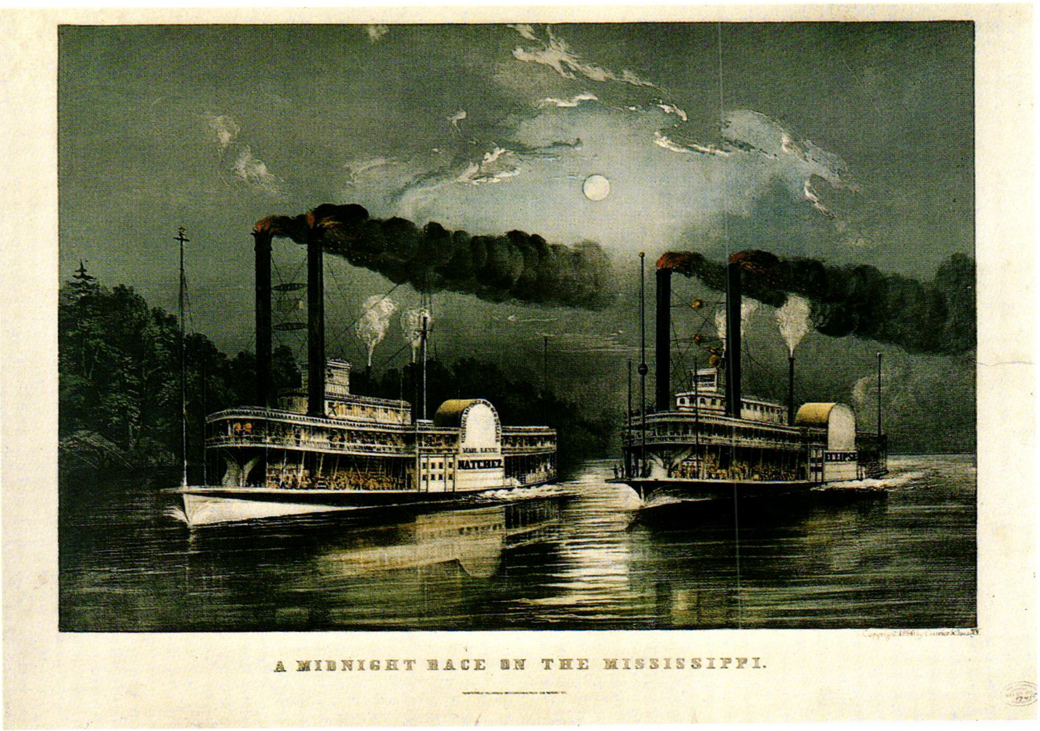
artist unknown
Pillsbury Mills, circa 1906
Collection: Minnesota Historical Society

As the mid-19th century was the great era of printmaking, it was also the period of intensive riverside milling. This exuberant lithograph depicts one of the earliest and most successful enterprises on the upper Mississippi.


CHAS. A. PILLSBURY & CO.
MERCHANT MILLERS,
MINNEAPOLIS, U.S.A.
DAILY CAPACITY
10500 BARRELS
Pillsbury's
BEST
XXXX
GEO. A. PILLSBURY.
JOHN S. PILLSBURY.
CHAS. A. PILLSBURY.
FRED. C. PILLSBURY.

published by **Currier and Ives**
A Midnight Race on the Mississippi, 1890
Collection: Library of Congress

One of Currier and Ives's most popular themes was the Mississippi riverboat in all of its manifestations. Steamboat racing was among the most frequently drawn images, though night racing, as shown in this example, would have been a river pilot's nightmare. Difficult and extremely dangerous even in daylight, racing often ended in disastrous explosions as the steam-driven engines were pushed beyond their normal capabilities and temperatures.


NATCHEZ
ECLIPSE
A MIDNIGHT RACE ON THE MISSISSIPPI.

such as *Midnight Race on the Mississippi* were probably sent out of the shop to moonlighting artists. Working from the model, they were paid one dollar a dozen—or as many as they could do on a weekend, and this was probably about as much as Fanny Palmer earned. Many of the Mississippi River prints were so popular that they were printed over a period of years, with considerable variation in color. Editions were unlimited and cheap—small prints retailed for 15 to 25 cents, large folios from 1.50 to 3.00 dollars.

Currier and Ives worked perfectly together—Currier the artist, Ives the businessman. This craftsman-salesman duo owned a printing shop on Spruce Street and a retail shop around the corner on Nassau Street, the traditional factory-store combine. From the 1830s to the 1890s the firm turned out over 7,000 subjects, over 100 of these about the Mississippi. They technically perfected the single run, black and white lithograph and one of the reasons they could run so many good impressions was the superior lithographic crayon and ink Nathaniel Currier's brother Charles invented. The Currier crayon was a blend of wax, soap, and shellac. The ink was an incredible blend of beef suet, goose grease, white wax, castile soap, gum mastic, shellac and gas lamp black. Coloring was accomplished with the finest Austrian pigments available, and a light sheen or varnish was often added on darker parts to increase luminosity. Fanny Palmer's career coincided with the years in which the firm introduced improved materials, and with the availability of skilled colorists.

Currier and Ives's prints of Civil War naval battles on the Mississippi express the aspirations and prejudices of the North. As propaganda, they describe only the victories; as news they view a battle as a fireworks display. As can be seen from a half-dozen battle lithographs the Union ironclads penetrated deeply into the Rebel interior, but the South was well dug in. There is an admirable attempt to illustrate total war, even though most of their information was gleaned from the poorly illustrated *New York Press.*

Most famous of all the Mississippi River subjects are the steamboat races. The contest between the Robert E. Lee and the Natchez, claimed to have taken place in July of 1870 in less than four days (or a somewhat unbelievable 13 miles an hour), may not have taken place at all. The side to side *Midnight Race on the Mississippi* is an idealization reflecting Currier and Ives's love for sporting events and their Yankee need to see the Mississippi as a life stream uniting East and West. H. D. Manning made the original sketches, and Fanny Palmer drew it on stone, but the concept behind the work is pure Currier and Ives.

Another genre of early lithography is the bird's-eye view town panorama. Currier and Ives and many other publishers sold town views before the Civil War. By the 1880s, the documentary aspect of the craft was perfected; their 1885 perspective of New Orleans remains one of the finest ever made and crowds as much detail as possible into every square inch of the sheet. Most early views are schematic and outskirts are shown quite prematurely developed, as if the local chamber of commerce had prodded the artist to predict a building boom. Usually, an imaginary viewpoint holds us a couple of hundred feet off the ground, with somewhat contradictory or multiple point perspective intended to enhance legibility.

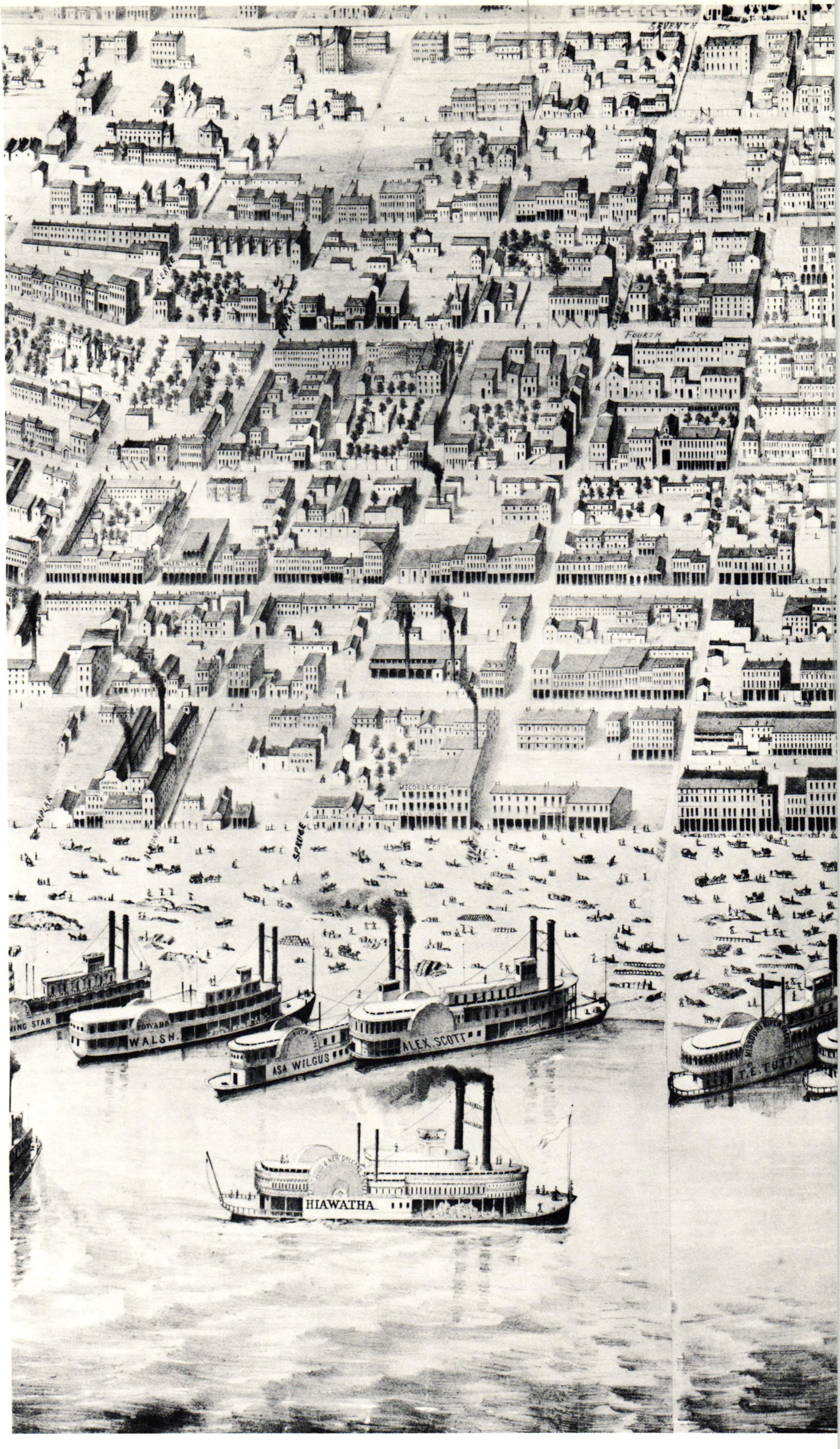
In the bird's-eye view prints, Mississippi River towns are portrayed for their vital river commerce and for the busy industry along their banks. Since early rail lines followed the river, rail yards also appear prominently. Minneapolis offered everything for this idiom, since both its banks (Minneapolis and the old city of St. Anthony) were heavily built up with flour mills, lumber mills and railways. It is a happy coincidence that two of the most intricately detailed views made in America are W. V. Herancourt's 1885 and Frank Pezolt's 1891 views of Minneapolis. The first of these is more realistically drawn and gives a strong impression of commercial activity along the river's major structures—the stone arch railway bridge (there just happens to be a passenger train on it), St. Anthony Falls, and the second suspension bridge. In the second view, this is replaced with its present iron truss bridge, covered with new trolley tracks (and there are now two trains crossing the stone arches). A. M. Smith, a local wine distributor,

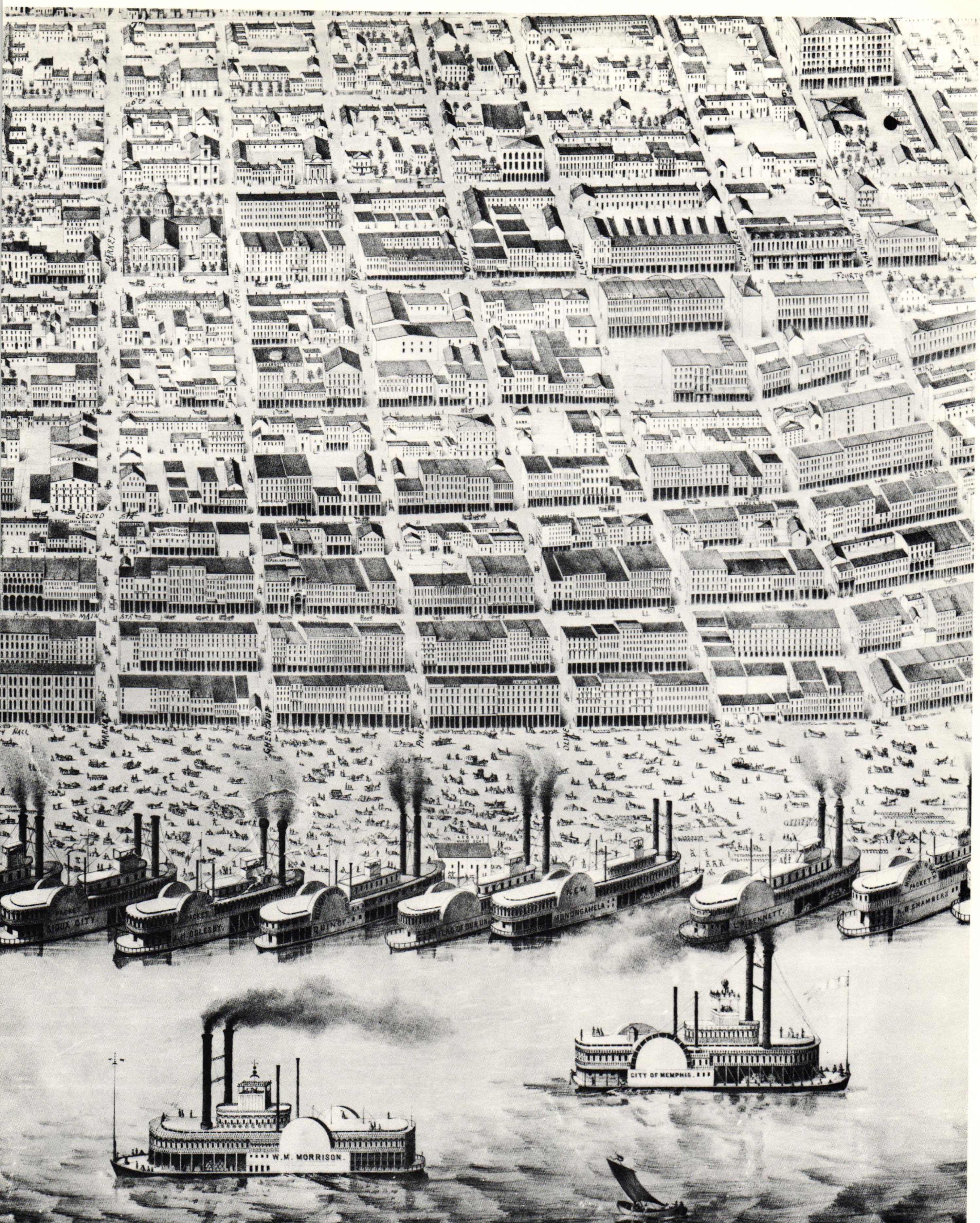
J. T. Palmatary
Bird's-Eye View of St. Louis,
(detail), circa 1870
Collection: Missouri Historical Society

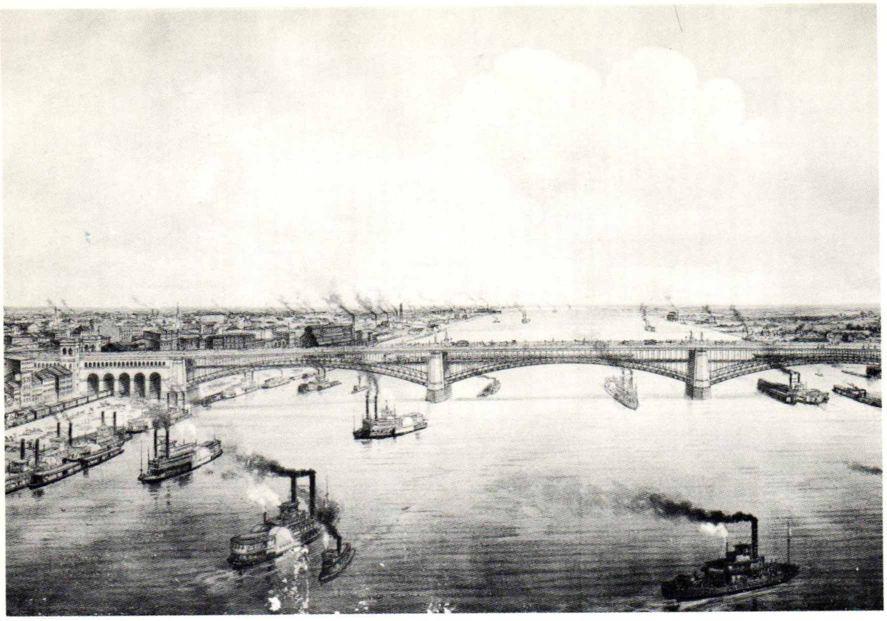
The bird's-eye city view had become a convention by the 19th century and was used extensively to document river cities. Its formula approach consisted of translating all identifiable components—houses, boats, wharves, streets—into diagrammatic volumes. The entire complex was located on a ground plane receding into the distance.

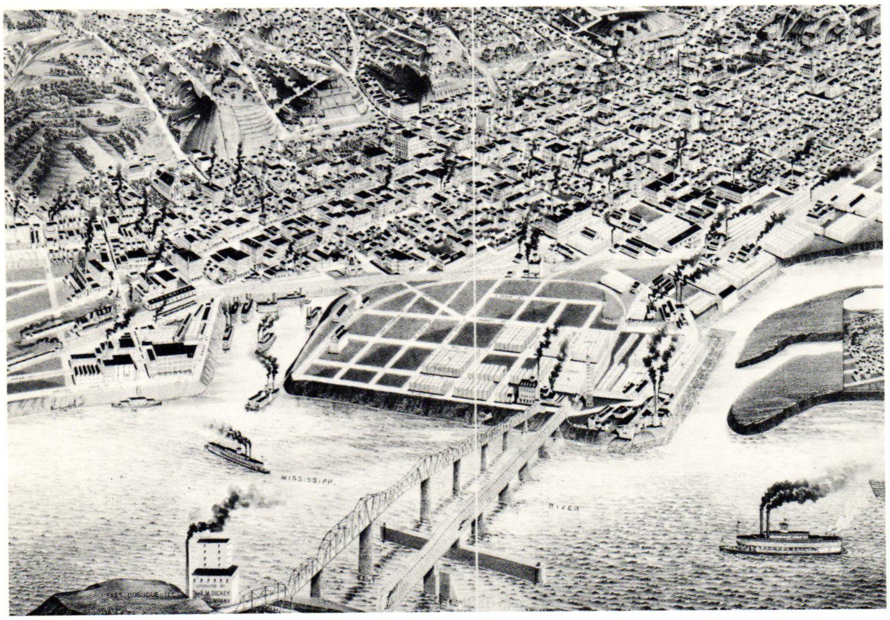
The Palmatary view of St. Louis is an aristocrat of this genre by virtue of its large scale (at 45-1/2 x 94-1/8 inches, it is more than twice as large as the average bird's-eye print), which permits the most concise description of each element; virtually every street is labeled and every steamer along the riverbank can be recognized.

These views provided information much like that now gained through low-level aerial photography yet, the bird's-eye view from which all superfluous detail has been edited—and to which more than a few idealizing touches have been added—systematically provided more information than any photograph could supply.




6th St.
5th
Market
4th St.
Chesnut
Pine
Olive
Locust
St. Charles
Washington Ave
Fourth Str.
Laclede Hotel
Wilson's Marble Yard
3rd St.
J. Blattner
Second St.
United States Express Company
Republican Office
Bank
Main St.
Second
Third
Vine
Hall
Keokuk Wharf Boat
Packet
Sioux City
Packet
J. H. Oglesby
Quincy
Flag of Our Union
New
Monongahela
L. M. Bennett
Missouri River Packet
A. B. Chambers
City of Memphis
W. M. Morrison





commissioned this later print, and we are reminded of this several times. Not only does Mr. Smith place his name in its rightful place above his own establishment on Hennepin Avenue, but his "wine vaults" are squeezed into the lower right corner and "Go to A. M. Smith's 249 Hennepin Ave." appears on the roofs of the train sheds of the Milwaukee Road station, where only the pigeons would have seen it. Smith then points out that Minneapolis is, "The most properous city in the United States, where 22 mills grinds [sic] over 10,000 barrels of flour pr. year." We are also told the city has grown from 8,106 in 1865 to 200,000 in 1892—this when the print was published in 1891.

By the turn of the century, the wet plate photograph almost totally supplanted lithography as a recording tool. No serious professional photographer ever fully documented the upper Mississippi, but hundreds of panoramic photographs survive. Many of these are two and three part, and were crudely printed from glass plate negatives. Most of these photographs are inferior to the bird's-eye view lithographs, since they show only a small section of town, and usually concentrate on the town square, whether or not it was the real center. For the Mississippi River towns, it almost never was (Jackson Square in New Orleans is an exception), and towns like Minneapolis, Dubuque, Winona and St. Louis spread along the river, with no central focus. What the photographs do show are expanding, jerry-built towns, whose manufacturing and transportation focused on the river. Commercial photography was still in its infancy, but it was fast, cheap and able to capture detail impossible with crayon lithography. Today hand-drawn illustrations in scientific literature, and hand-rendered bird's-eye views have been revived by the startling isometric views of the German publisher Hermann Bollmann, but now both are photomechanically reproduced on the high-speed lithography press. The great era of popular hand lithography was regrettably short, as was the great era of the river itself.

published by **Currier and Ives**
The City of New Orleans, 1885
Collection: Library of Congress

Among the most complex town views published by Currier and Ives, this print depicts a bustling harbor where over 50 boats are docked.

Frank Pezolt
Bird's-Eye View of Minneapolis, 1891
Collection: Library of Congress

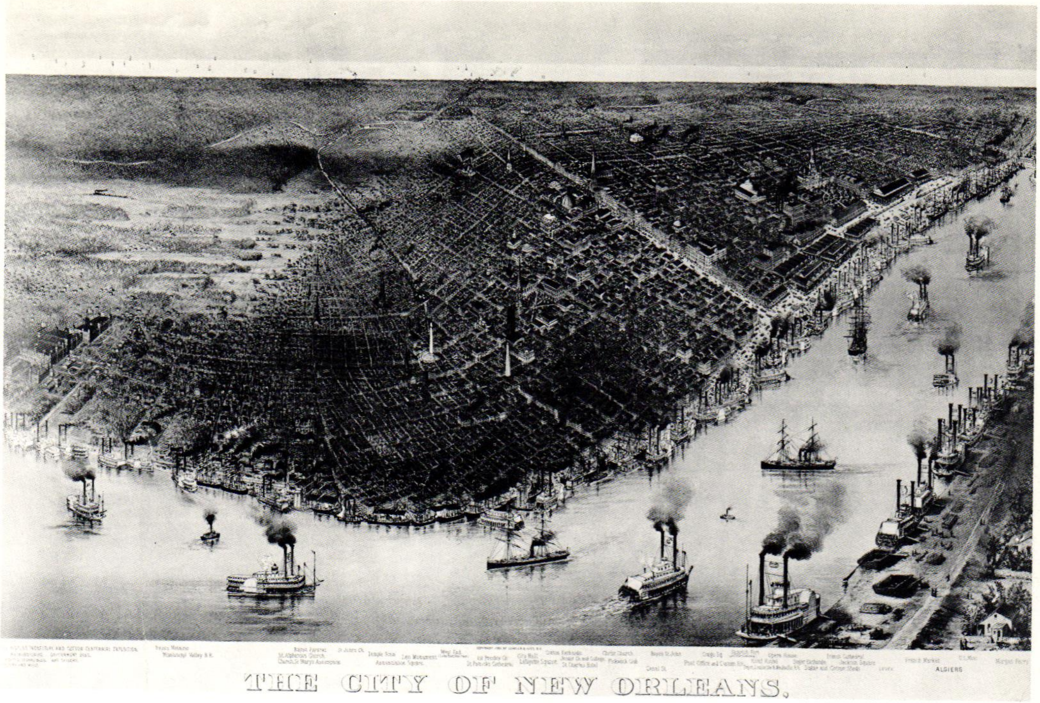
This print was commissioned by A.M. Smith, a local wine merchant, who undoubtedly distributed it as an advertisment for his business.

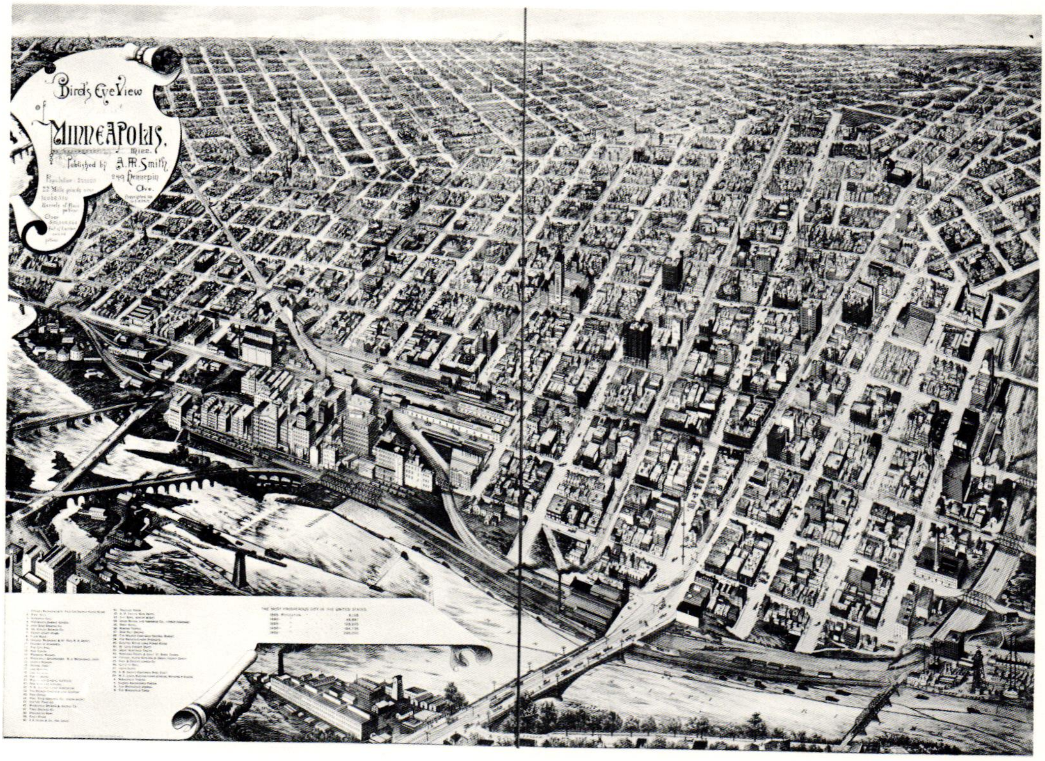
(opposite)
F. Welcker
The Bridge at St. Louis (detail), 1874
Collection: Library of Congress

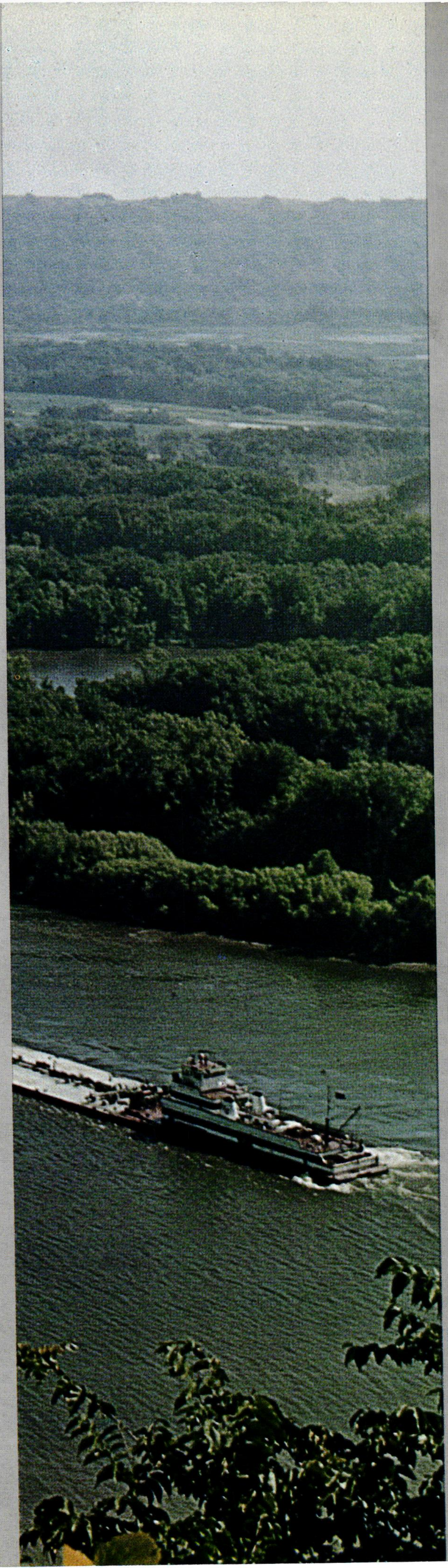
This rather severe depiction of the glorious steel bridge named for its designer, Captain James B. Eads, contains, in two bands not shown in this detail, small drawings of the caissons and steel structural system used in the bridge.

H. Wellge
Perspective Map of the City of Dubuque, Ia. (detail), 1889
Collection: Library of Congress

In this 1889 view of Dubuque, the artist has shown every important building in town, and below the central image (in an area not shown here) the buildings are listed by numbers corresponding to those on the roofs of the buildings. This example of the late bird's-eye view style was undoubtedly used by Dubuque's city fathers for the promotion of industrial growth.







III BOATS AND RIVER TOWNS

> The great ship-canal . . . in the Flowery Kingdom, seems the Mississippi in parts, where flowing between low, vine-tangled banks, . . . it bears the huge toppling steamers, bedizened and lacquered within like imperial junks.
>
> Herman Melville *The Confidence Man*

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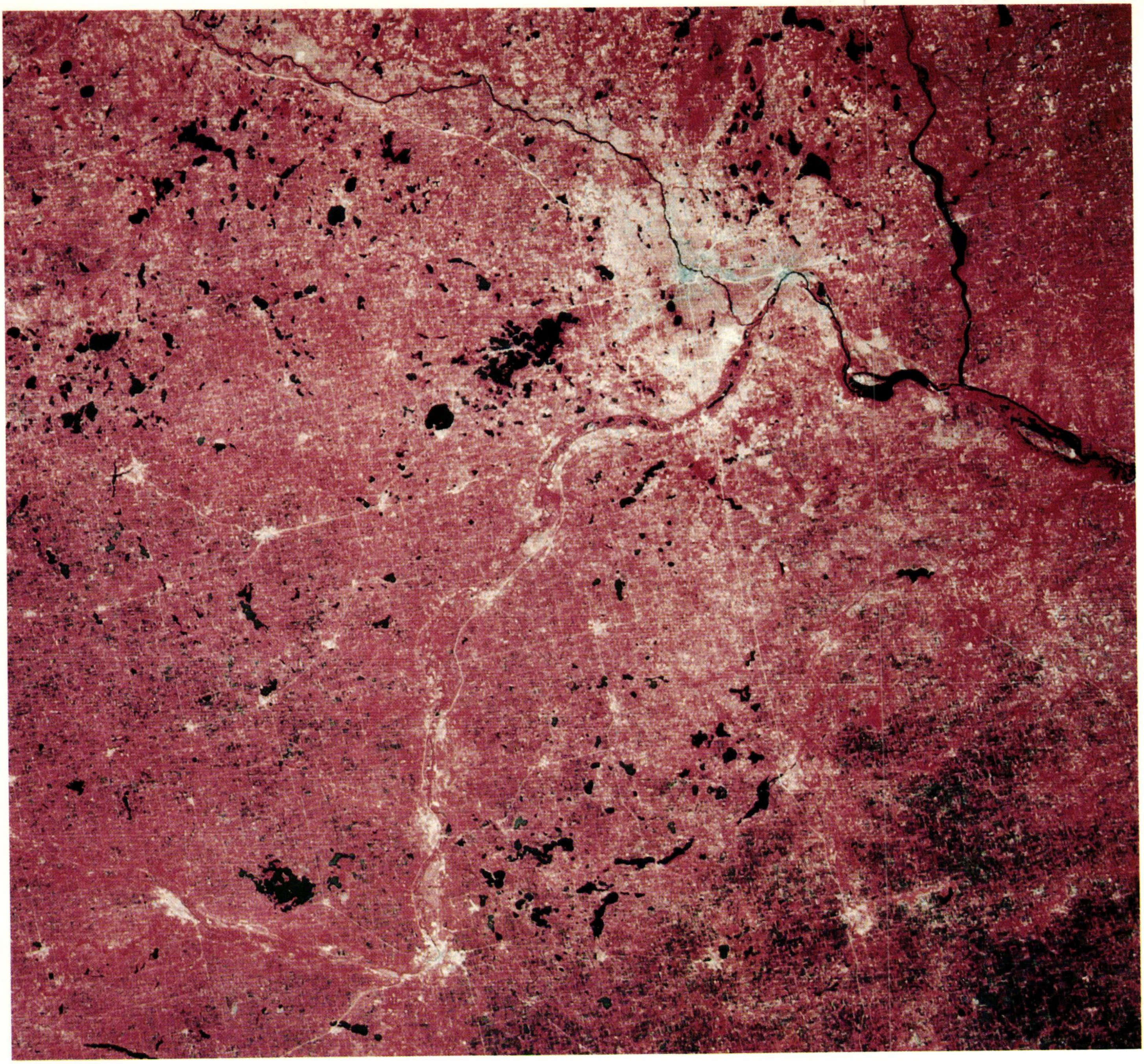
Floating Architecture John Fryant 64



ERTS Photograph of the Twin Cities

This photograph was taken automatically from a NASA satellite (ERTS, or Earth Resources Technology Satellite) which is in polar orbit around the earth at an altitude of 567 miles. The satellite images each locale in the United States every 18 days; and each frame of photography covers an area 115 x 115 statute miles. The color in these photos is in the near infra-red banding area and in printing the photographs for scientific study, NASA has found that important features are best shown as follows: healthy vegetation, bright red; clear water, black; and mixtures of concrete, asphalt and rooftops (cities) appear blue or blue-gray.

20th Century Life on the Mississippi

Richard Bissell

Richard Bissell's devotion to river travel is described in *My Life on the Mississippi: Or Why I Am Not Mark Twain*, a witty, loving recollection of his lifelong involvement with the great river. With his kind permission, we have reprinted sections of this 1973 autobiography in which he captures river life as no one has since Twain's own *Life on the Mississippi*, written about 100 years ago.

The steamboats are nearly all gone. It all happened so fast, like the trolleys, like the passenger pigeons, and the passenger trains. At one time you could go from Baltimore, Maryland, to Brunswick, Maine, by trolley car. William Ellery Channing, the great historian, said the trolley car was the greatest invention of mankind because it gave so many people so much pleasure. Then along came Henry Ford and busted up that theory and made us what we are today. All the older men on the river now—I mean men of fifty-five or sixty—started on steamboats. I started decking on the steamer *James W. Good* of the Federal Barge Line, and later on I was third deckhand and second cook on the giant sternwheeler *Alexander Mackenzie.* I have personally steamboated with old scrawny deckhands out of the Pittsburgh pools from the days when they had no bunk rooms, they laid down where they could. And they pumped bilge out of those Consolidation coal boats with spring-pole pumps.

Working and living on a real steamboat was a lot different from life on a diesel boat, no matter how big. A Western river steamboat on a long run carried a barge alongside full of coal called a "fuel flat." To make the boat go the deckhands wheeled the coal out of the fuel flat in wheelbarrows and they dumped it in the fire room. The fireman built a fire under the boilers and made steam and the steam made the boat go. On a steamboat everybody was aware of the engines and the boilers and the fires and the coal. But on a diesel boat there is not much of a to-do. To fuel up you stick a hose in a hole in the deck and that's that. The engines are pretty boring because there are usually no moving parts visible and they don't smell right. Oh, I like *all* engine rooms but there is a big difference between steam and diesel believe me. A steamboat almost seems alive.

Captain Marryat was on a steamboat, way back in 1838 on the Upper Mississippi above Galena, "the present emporium of the Mineral Country," and he wrote in his journal: "It is this appearance of breathing which makes the high pressure (steam) engine the nearest approach to creation which was ever attained by the ingenuity of man."

And of steamboating on the Ohio in 1823 Giacomo Beltrami, the Henry Armetta of nineteenth-century travel writers, observed: "The passengers are provided with...beds, to which the noise of the water and the machinery imparts a soporific virtue not to be found elsewhere."

Mark Twain never became enthralled by the engine room. Perhaps it was beneath him in more ways than its physical location. At any rate the magic seductions of crossheads and rocker arms and doctor pumps never reached him. Some people were afraid of steamboat engines and their ways and liked to stay away from them. They were mysterious creatures and best left to the engineers.

When he was 16 years old, Bissell and a friend rafted downriver from Winona, Minnesota, to Clinton, Iowa, where their flatboat was swamped by the wash of a sternwheeler. Determined to complete their Huck Finn pilgrimage, they bummed a freight train ride into Hannibal, Missouri and finally arrived at their destination, the Hotel Mark Twain.

This was in 1929, ten years nearly before the locks and dams and the present day pools of the Upper Mississippi. All, all was different. Recreational boating, which has now reached manic proportions, had barely been thought of. Pleasure boats were few, commercial fishermen and clammers scarce, and real live steamboats in short supply. Scattered over the 853 miles between the Northern Pacific Railroad bridge at Minneapolis and Peddies Landing at the mouth of the Ohio River there were probably not two dozen steamboats at work, including the ferry at Rock Island and the big railroad car ferry at Ste. Genevieve, Missouri. In addition there were: the struggling subsidized fleet of the Federal Barge Line; a number of small sternwheelers in the sand-and-gravel trade; the channel maintenance boats and dredges of the U.S. Government; and in the glamor dept., the *J.S.* and the *Capitol* of the Streckfus Lines, enormous, gaudy, tantalizing excursion boats with their steam calliopes and deep-throated whistles.

Bissell's devotion to the Mississippi included a desire to live on a houseboat. Fortunately, his young bride

Marian shared his passion for the special style that goes with river living.

It was advertised in the *Waterways Journal* and it was located at La Crosse, Wisconsin, 120 miles upriver. So we climbed into my 1935 Ford convertible sedan, which Mycroft [the author's brother] called "The Trellis" because of the exposed top bows and fragments of tattered canvas formerly the top; listen, on $22.50 a week you can't buy new custom-made canvas auto tops; listen you kids of today, you don't know what we went through, why I never saw a ten cent piece until I was sixteen years old. And we drove to La Crosse and saw George Neilter who was living in a nice warm (it was March) cozy houseboat right below the railroad bridge. He rowed us across the river and there stranded on the island among the bare wintry trees was the former Corps of Engineers Quarterboat No. 237, looking for all the world like a frame country hotel transplanted to a barge. Two stories high, with a gable roof, overhanging Swiss balconies at each end, with *forty* twelve-light windows, it was an awesome sight. It was also sunk. The front door was open and the current, nearly up to the doorknob, was entering enthusiastically and rushing through the house and out the back door, *sixty feet away.* Yes, the barge was eighty feet long and that's quite a barge.

"Well that there leak now that don't amount to much," George said. "I will borrow this big fire pump from the city and pump her out and I will lend you that there pump until you get her down there to Dubuque."

We paid $500 for this monstrous leaker and $100 to a fisherman who towed it to Dubuque with a flatboat, us dangling behind on a line. The only time he said he could do it was at night and he had never been below Lynxville so he spent the night hunting buoys with a five cell flashlight while we were back on the house keeping her afloat with that City of La Crosse fire pump. This had a four-inch discharge and a big delivery but even so our new home had to be pumped every hour or it would have been The End. It was not really a fun trip but we made it to Dubuque harbor. Other pumps were brought into play and daily life became a struggle to keep our $500 investment and home from slipping beneath the waves. A sunken boat is the saddest sight on earth.

Mother had turned to stone since the announcement that we were going to live on a houseboat in that awful harbor or on that awful river. Her role of royalty incognito was fearfully threatened. She put Father in the Iron Maiden over night and gave him two days of the Chinese Water Torture combined with the Silent Treatment and Mutton Hash for both lunch and dinner. Then she turned him loose on me.

"Close the door," was the first piece of business at the office the next day and the second piece was "I don't want to hear any more of this nonsense about a houseboat. Your mother . . ."

"It's too late, Dad," I said. "The houseboat is in the harbor. I already bought it."

Ever since I had "grown up," I made Father nervous. Just being alone together embarrassed us both. Father got red in the face. It was a strange relationship: Father was afraid of Mycroft, I was afraid of Father. I made Father very nervous because I was "that crazy kid" who was always doing terrible muckerish things like doing things with girls, hiding *Paris Nights* magazine in the root cellar, and putting Stacomb on his hair. When he got all fussed up with me, with the door closed, he always said too much, usually something rude. In a panic, I fended this off by being facetious. It was a very bad scenario.

"You know what this will do to your mother, don't you?" he said.

Fortunately the phone rang before I had time to reply to that one. It was Ira Davenport, then president of the Boat and Boiler Works.

"Fred," he said, "I don't want that boy of yours to take that little wife of his to live on that quarterboat. Mackert says it's leaking like a sieve. I'm putting a whole new hull on that boat and I'm doing it at cost."

"What did you do," Father said after he hung up, "tell Ira Davenport you were a pauper?"

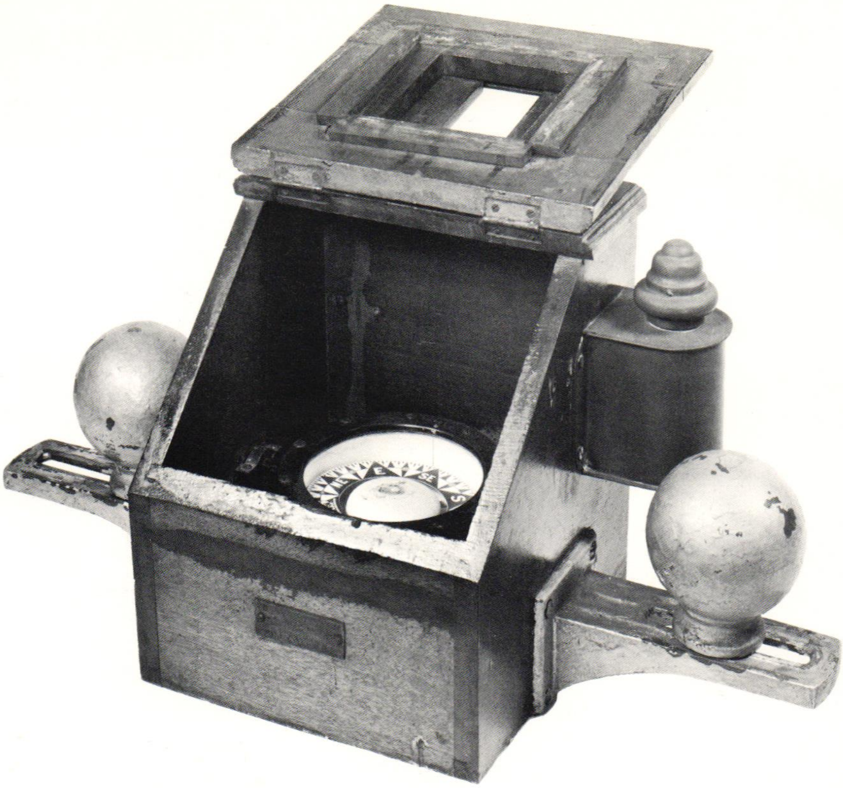
What the shipwrights at the Boat and Boiler Works did is something you probably could not get done at all today. Because the age of wooden-ship construction is over and the carpenters are fading away. What they did after they pulled this big barge-with-a-house-on-it out and jacked it up was to saw both

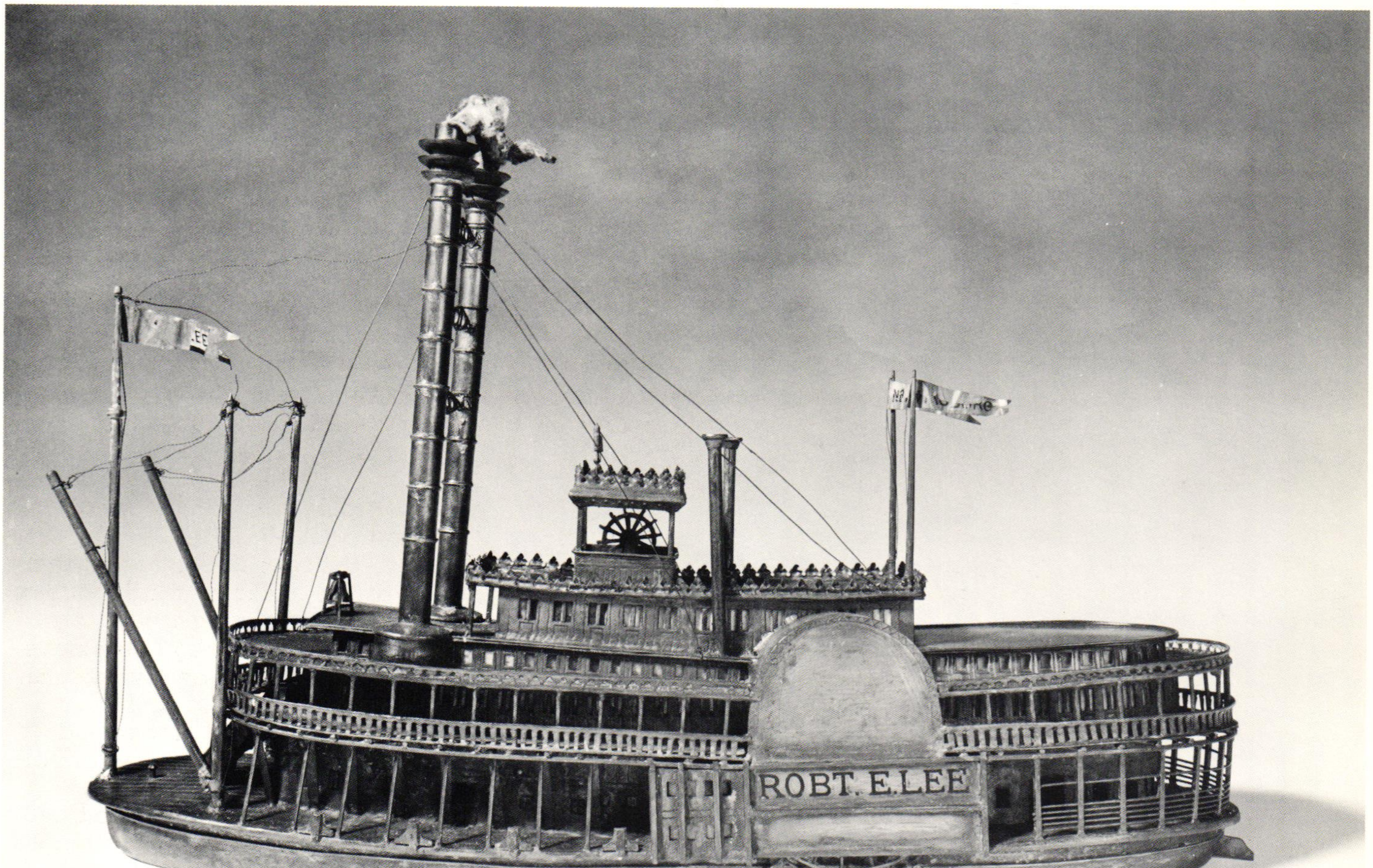
Compass
Collection: Missouri Historical Society

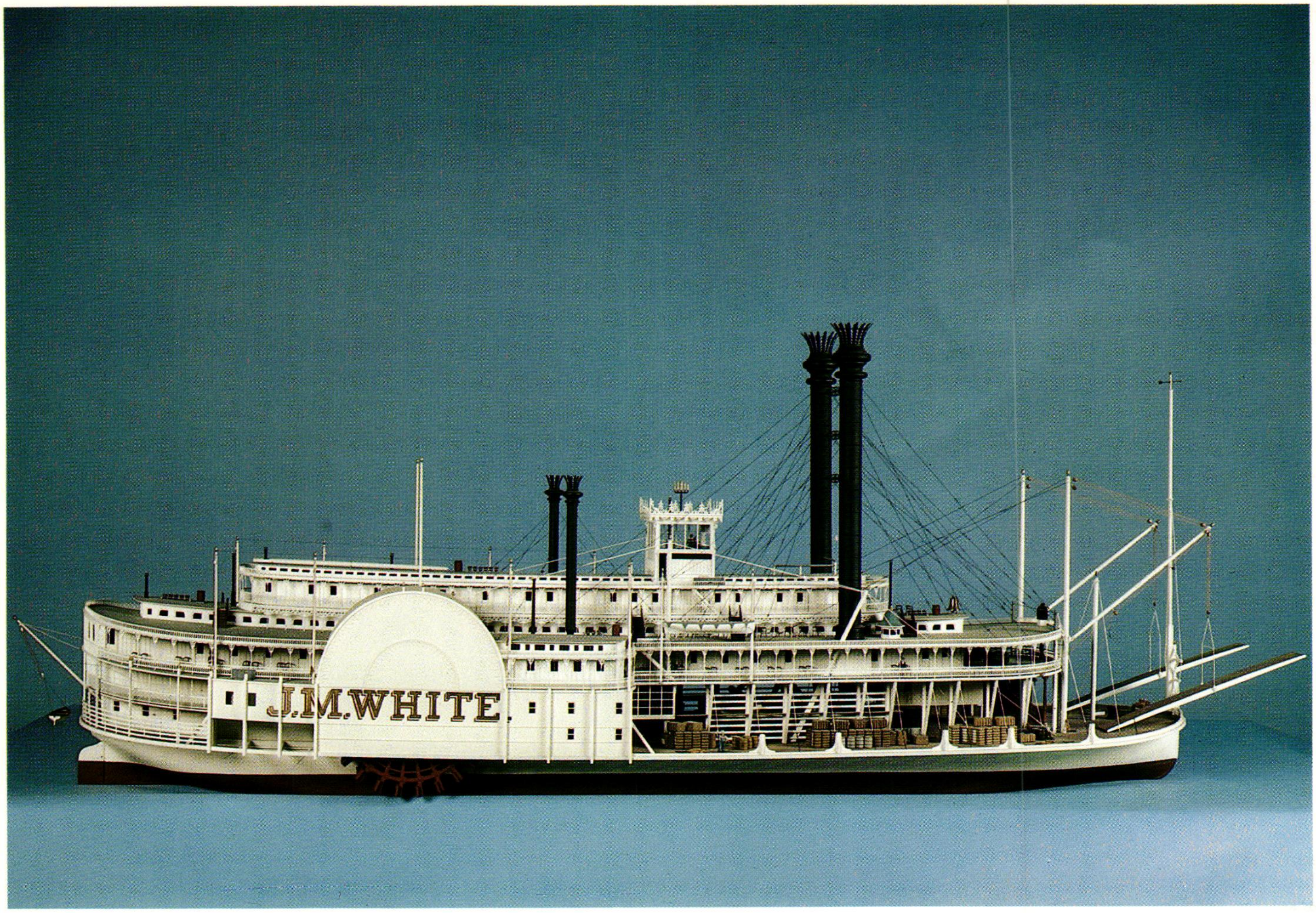
This box with a glass viewing panel contains a typical pilot house compass from the 19th century. The positioning devices allowed the pilot to adjust the compass for true north.

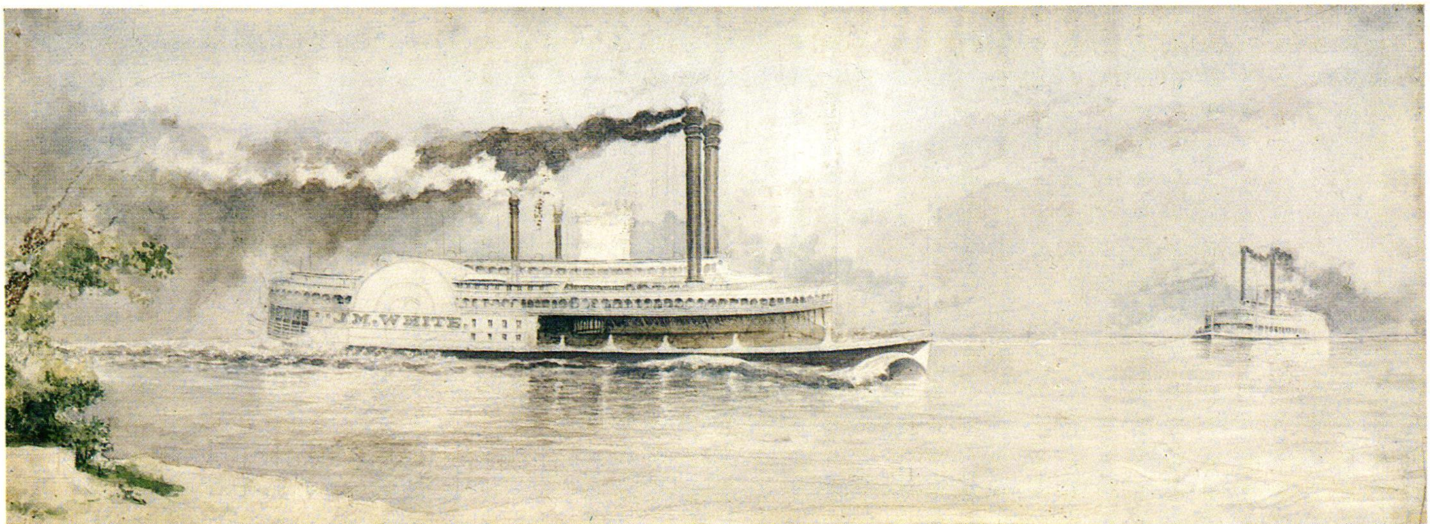
unknown artist
Robert E. Lee, circa 1900
Collection: Louisiana State Museum

This folk model of copper, made about 1900, is a not very accurate anonymous rendering in metal of one of the most famous wooden sidewheelers ever to travel the Mississippi.






J.M.WHITE


J.M.WHITE

(opposite)
model of the *J. M. White*
Collection: Smithsonian Institution, The National Museum of History and Technology

By 1880, packets were developed to transport huge cargos of cotton. The grandest example of this kind of vessel was the J. M. White III. Launched in 1878, she was a product of the famous Howard Shipyard in Jeffersonville, Indiana. Designed to carry 10,000 bales of cotton, and with engines capable of making her the fastest boat on the river, she never realized her potential. When she burned in 1886, nearly every sizeable town in the lower river valley had rail connections to New Orleans; four times as much cotton was being shipped by rail as by river.

F. T. Anderson
The Steamboat J. M. White,
circa 1917
Collection: Louisiana State Museum

Anderson's delicate watercolor of the steamboat J. M. White captures its scale and elegance as it must have appeared on the river in the 80s. Though there were still some packets on the Mississippi when Anderson was painting there, the great days of riverboating were gone and his work has a nostalgic quality that reflects a sense of loss.

gunwales off the barge for the full length of 80 feet. Then they made an entire new gunwale of timbers six inches thick built up to three feet wide and pinned together with drift pins. They jacked this up and just like cabinet work it slid into place a perfect fit, no planing, shaving, pounding, or cussing. "You can't get that kind of work no more."

While this was going on and I was up at the factory giving fairly unconvincing imitations of a Rising Young Executive, my old lady, who had now reached nineteen, was down inside the barge with a hoe and shovel removing a six-inch deposit of smelly mud, sand, and goop, shoving it through holes in the bottom made by knocking out every tenth bottom plank. At the present time if you want a houseboat you go to a marina and buy a houseboat. The last one I looked at was about one quarter the size of the *Prairie Belle* and cost $22,250. We paid $500 for ours and Ira Davenport's bill for labor and lumber was $1,200. Even in 1939 that was CHEAP.

ON THE MAIN DECK

Living room with four windows.
Baseburner.
Music room with full size piano.
Bedroom with four poster bed.
Bathroom with full tub.
Kitchen—very large.
Pantry number one. Large.
Pantry number two. Larger.
Kitchen deck 8' x 19'.

ON THE SECOND DECK

Two bedrooms.
Sewing room.
Tank room.
Enormous fun room with full-width balcony.

We had no cocktail flag on the *Prairie Belle* but plenty of room. We were just as comfortable as in a house. We didn't have bunks—we slept in a four-poster bed.

We lived there. That's what, I guess, had congealed Mother.

We had no other home. Everything we owned was in this boat, afloat on the Mississippi.

I worked in an office—I walked home to a houseboat. We invited people to dinner—they came—to a houseboat. We called for the doctor—he arrived—at a houseboat. The milkman came—to a houseboat. The piano tuner and the piano teacher both came down to "that awful harbor"—to a houseboat. We went to Chicago—and came home—to a lovely welcoming houseboat with a beautiful range boiler and *mit vielfarbigen bunten Gemutlichkeit* and steamboats out the window and oil lamps swinging gently from the ceiling.

The paperboy hurled the evening paper—it lit with a thump on the deck—of a houseboat. The dog came home from the vet—to a houseboat. We basted the Thanksgiving turkey—on a houseboat and came home from church to a houseboat. There was no other place to go. It was our home, our only home in the day and in the night, on long summer days when the river sparkled in the South wind and on winter nights at thirty below when the contracting ice made pistol shots in the hull.

We brought the Christmas tree home—across the tracks and down the bank—to the houseboat—and we put a wreath on the door—of the houseboat *Prairie Belle* at Mile 580 on the Upper Mississippi. We went to the Grand Ballroom of the Julien Hotel to the Christmas dances and friends came down afterwards, the girls in their glacier satin gowns and the men in their dress suits—to the houseboat in the harbor. At one AM,Mycroft in white tie and tail coat was cutting figures on the harbor ice outside the kitchen windows. Good friends were singing around the piano. The bullterrier, the white cavalier, was lying in front of the parlor stove and the cat was in her corner. Everybody was young and everybody was beautiful . . .

In later years, despite warnings from many sources, Bissell decided to build a switch boat with which he hoped to make a modest living.

Dubuque was unloading a few hundred barges a year at this time and the idea was this: when a big towboat with from eight to twenty barges arrived in town with a single barge to deliver they had to tie off the whole string of barges below town and use a huge 5,000 horsepower towboat and two hours to deliver one measly barge or maybe two. My "switchboat" would go out and snatch the barge away from them instead, and they would go on up the river, or down the river. And I would send them a bill for $35 for delivering the barge. And I would own a genuine towboat and it would pay off and everybody would have a lot of fun. Well we had a lot of fun, a great deal of it at my expense, and it didn't pay off. I didn't go bust but I ended up fairly well bent, just like the rudders.

A month [after the Bissell Towing and Transport Company was incorporated], the boat was finished and ready for a trial run. It was painted a lovely red like the Moran tugboats in New York harbor with black trim and BISSELL TOWING AND TRANSPORT CO. in letters a foot high running along both sides of the boat. The name on the pilot house could also be read a mile away. The name was *Coal Queen* in fond recollection of the first piece of writing I ever sold, which burst like an aerial bomb over the astonished heads of the readers of the *Atlantic Monthly,* Edward Weeks, editor. Seventy-five years previously, Mark Twain's first sections of *Life on the Mississippi* had appeared in this same very elevated and Bostonian literary dreadnought, William Dean Howells, pilot and chief engineer. "The *Coal Queen"* was about towboat life on the Monongahela River in West Virginia, where I had put in time. It did for me in my modest way what "The Celebrated Jumping Frog of Calaveras County" did for Sam Clemens. After that there was no turning back and no further thoughts of sending that coupon to the Coyne Electrical School at 500 South Paulina St. in Chicago to find out the Quick, Easier Way to MAKE BIG MONEY IN ELECTRICITY!! I was a Writer.

Bissell, like Twain, finally became a licensed river pilot.

> Sometimes a youngster comes along nowadays and says to me, "Captain, do you think I could learn the river?" and I like to lean on an old pilotwheel and say, "Well, son, it's hard to tell about that. Some of the big, husky fellows I've taken on to 'learn' weren't any account at it—wasted four years—all for nothing. Then again, some little puny fellow who didn't look as if he could whip a cat, just up and comes in a winner. One thing certain: you can't *make* a pilot out of *anybody;* a man has to have it born in him; pilotin' comes natural."
>
> CAPTAIN FREDERICK WAY, Jr.

Pilots had all kinds of troubles, and they still do. They had troubles with boats which steered badly and handled erratically, troubles with the channel, with the weather, wind, floods, low water, troubles with bridges, landings, locks, troubles with the engine room, the galley, the mate, the pilot house windows which rattled constantly and had to have wooden wedges stuck here and there which soon fell out; troubles with too little heat in the pilot house and too much heat in the pilot house, troubles with the god damn owners, and always troubles with the river itself, for it never stands still.

One part of the license for pilot is written questions about the Pilot Rules and whether you should blow for a dredge pontoon line across the channel and get them to open it or just bust your way through—things like that.

The other part is drawing a map of the section of the river over which you want to hold license. In order to do this you have to have been paying some attention to the river. You don't just draw a squiggly line and mark some towns on it—you draw a large scale detail map or chart of every mile. By large scale I mean about an inch to a mile. That means that if you want license from Minneapolis to the mouth of the Ohio at Cairo for example, your map will be about 856 inches long on something like 65 sheets of paper. If you want license to New Orleans just add 975 inches more onto this chart you have to draw out of your head.

On this map you must plainly indicate:

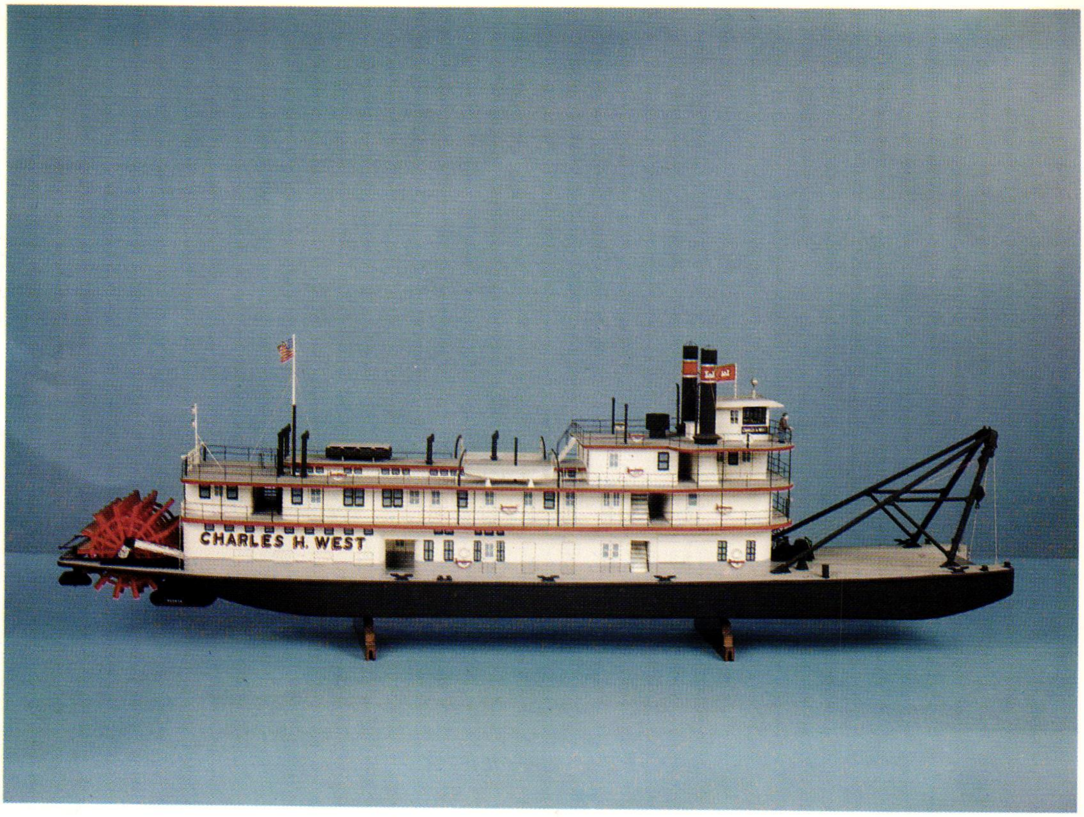
The channel
Islands and chutes
Wing dams (millions)
Buoys (hundreds)
All channel lights (hundreds)
Known bars, shoals, rock piles, or
  other features of the kind
Locks and dams with dimensions
  in feet
Cable crossings
Docks, landings, pilings, moorings
All bridges with span clearances in
  feet, and distances of fixed
  bridges above high water in feet

model of the *Charles H. West*
Collection: Smithsonian Institution, The National Museum of History and Technology

A pioneer river steamboat designer, Captain Henry Miller Schreve was also largely responsible for contesting and breaking the Fulton-Livingston shipping monopoly on the inland waterways, and for making the rivers safer for navigation. In 1827 Schreve became Superintendent of Western River Improvement and began building a unique craft that would clear the rivers of snags, logs and other floating debris.

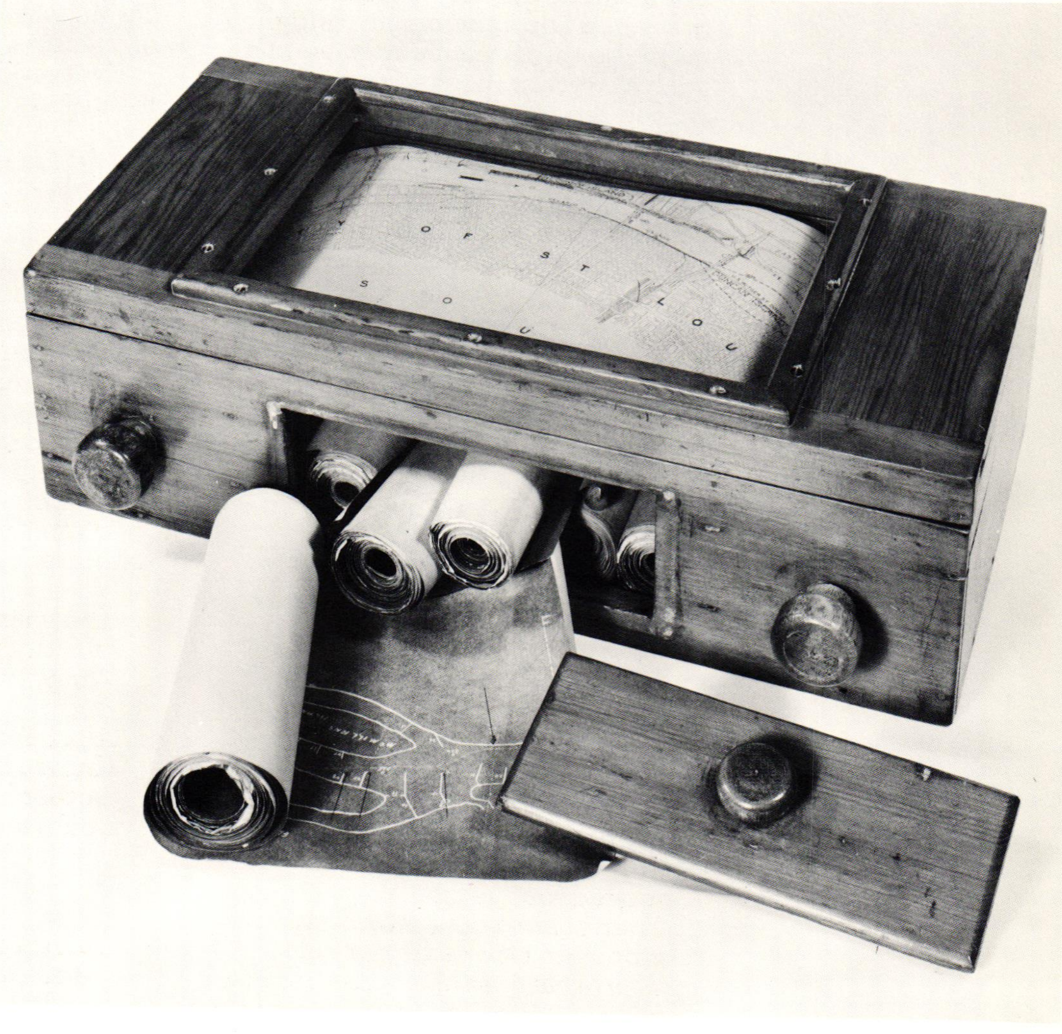
Schreve's snagboat was an ugly looking craft, but it did its job well. It had a massive M-shaped bow plated with iron and bristling with derricks and spars. Wedging a snag in the bow, it could be hoisted aboard where it was cut into harmless chunks by power saws and either thrown back into the river or burned for fuel.

Snagboats were used extensively well into the 20th century by the Army Corps of Engineers who, in 1824, were given the job of keeping the channels cleared for navigation. The Charles H. West, constructed in 1934, is an example of one of the last types of snagboats built. Used until the 1950s, she was supplanted by the modern practice of dredging.



Pilot House Map, 1931-32
Collection: Missouri Historical Society

Another version of the small ribbon map, shown on the inside front and back covers of this publication, this map was the riverboat pilot's "bible," detailing every idiosyncracy the river had in store.



(opposite)
David Plowden
The Edwin N. Bisso, 1974

This photograph of the Edwin N. Bisso's pilot house was taken from the Jackson Avenue Ferry in New Orleans. The Bisso is a paddlewheeler with a catamaran hull.

I wrote and drew maps for four or five days and Captain Moffett said it was all O.K. and he had me raise my right hand and he swore me into the fraternity and pronounced me and the Mississippi River man and wife. So the first thing to do was to go over to East Dubuque and celebrate and get drunk, which is against the Pilot Rules but only if you are on a boat and performing wonders under your license.

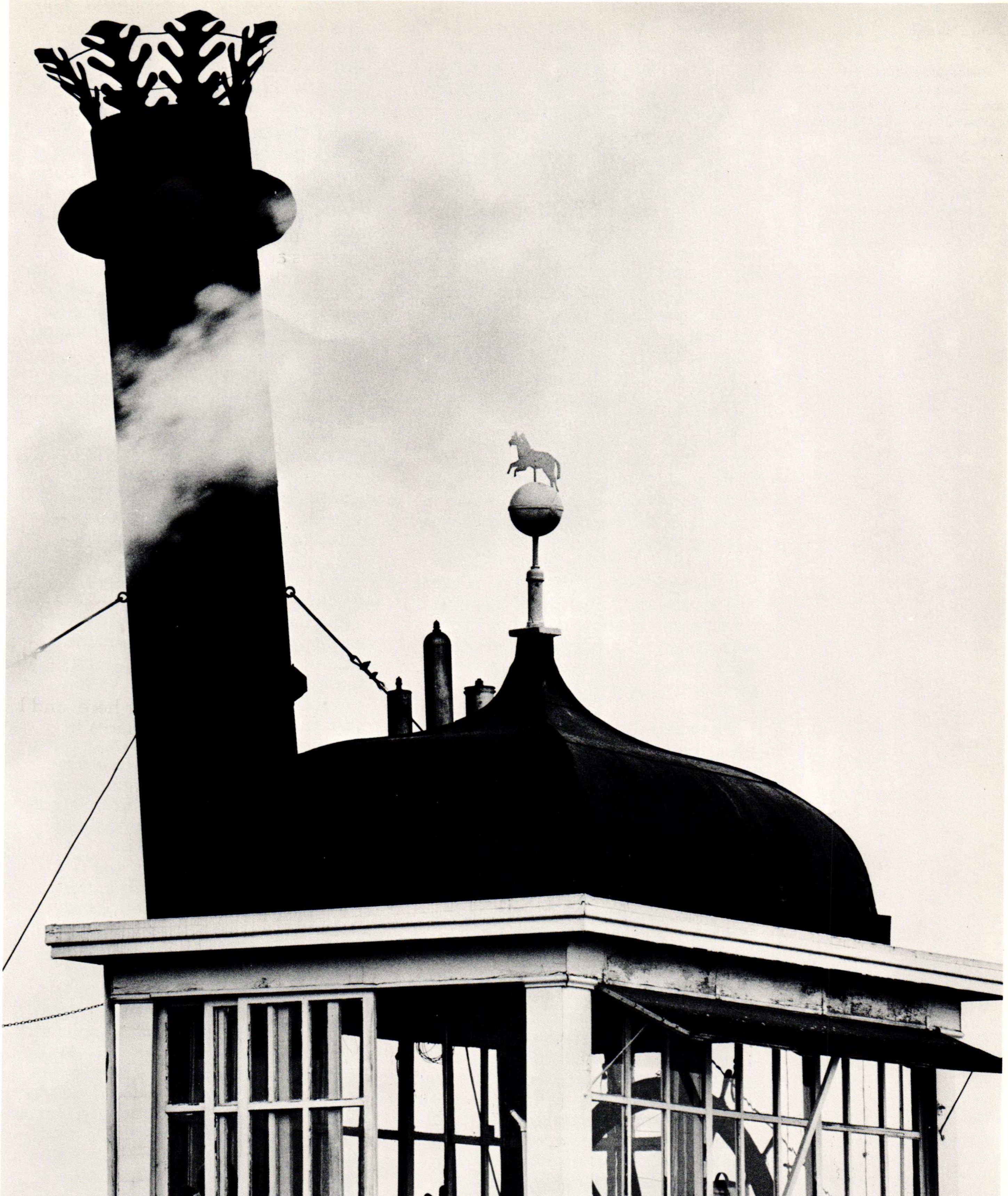
Samuel Clemens and I both got our pilot's licenses in the month of April. I was thirty years old, he was twenty-four. Mine is dated at Dubuque, Iowa, April 28, 1943. His is dated at St. Louis, Missouri, April 9, 1859. Mine was for a period of five years but his was for only one year. His license was issued under the Steamboat Inspection Act of 1852. Previous to that time there was no examination or licensing of pilots or engineers on inland waters. But the sound effects of steamboats exploding, colliding with each other, rending themselves on reefs and snags, finally got on people's nerves and the press and public made alarmed outcries. Congressmen and senators, fearing they might be thrown out and have to go back to work at the feed store, quickly passed the new bill.

Mark Twain's skill, or lack of it, as a pilot on the Mississippi, and his entire relationship to the river, has caused more wind than the 1871 cyclone at Coal Creek, Illinois, which blew the cabin and pilot house clear off of the steamer *E. Myron Grunt* and the pilot's gold watch 12 miles upstream to Rock Island, where it went through the roof and lit right on Fred Kahlke's desk undamaged.

Mark Twain himself created a big low-pressure area by his various highly romanticized and emotional statements on the subject, and by his omissions of truth. I think the truth—and getting at The Truth on Mark Twain is at least twice as difficult as Was Hamlet Really Whacky?—is that he was a good pilot but he didn't really like the fact as well as the notion, because piloting made him fidgety, that's what I think. If you have been reading this book and not just turning the pages while watching "Guiding Light" on the tube, you will remember my flood trip up the Ohio River. I was nervous, the captain was nervous, the only person aboard who was too dumb to be nervous was a deckhand from Scotts Run, West Virginia. So every pilot has plenty of times when he would rather be someplace else. But it seems Mark Twain was riding on his nerves most of the time.

Everybody's life on the Mississippi is different. Sam had his and I had mine.

And I'm only a stranger here, and I ain't got no frog; but if I had a frog I'd bet.


EDWIN N. BISSO.

Floating Architecture

John Fryant

John Fryant, exhibition designer and model builder, is a visual information specialist, U.S. Navy Recruiting Exhibition Center, Washington, D.C., where he has been head of the Design Department since 1972. Mr. Fryant has constructed many scale models of steamboats and other river craft for the Smithsonian Institution.

Steamboats on the Mississippi, as the major means of travel and transport, had been preceded by Indian and voyageur birch bark and dugout canoes, the 18th century flatboat (capable of downstream navigation only) and, in the 19th century, the graceful keelboat that was propelled upstream by poling along the river bottom.

The first steamboat to appear on the western rivers was a 116-foot long sidewheeler designed by Robert Fulton and Robert Livingston. She was patterned after Fulton's North River Steamboat, which had been the first successful steam-powered craft on the Hudson River and she ran between her namesake city and Natchez, Mississippi,until snagged and lost in 1814.

Fulton's boats could not operate above Natchez because their deep draft made it impossible for them to make headway against the swift current. A different type of craft was needed to conquer the Mississippi, and in 1817, Captain Henry Miller Schreve pioneered the development of a steamboat specifically designed for rivers, a shallow draft boat with engines and boilers mounted on the deck instead of in the hull and independently powered side paddlewheels.

The steamboat has been accurately described as "an engine on a hull, surrounded by a warehouse and covered over with a hotel." Freight was carried on the main deck which extended well out over the sides of the hull to a point even with the edges of the wheelhouse. Above the main deck was the misnamed "boiler deck" containing the "hotel" part of the boat: a row of staterooms on either side divided by a long, spacious, skylighted main cabin which served as both public room and dining hall. These "grand saloons" were elaborately decorated, often with imported carpeting and oil paintings above the stateroom doors. The walls and ceiling were usually white with gold trim and an overabundance of "gingerbread" jigsaw work. Elaborate chandeliers hung from the ceiling and the overall effect was that of a "long resplendent tunnel," appropriate to the "floating palace" character these boats had taken on. Atop the skylighted roof of the main cabin was a smaller cabin known as the "texas" and named for the state admitted to the Union about the time of the introduction of this cabin. The texas usually quartered the crew, although on large boats it was also used for passenger accommodations.

The pilot house was located on top of the texas. Glassed-in on three sides,its open front could be closed with hinged boards in bad weather until only a narrow open slot remained. Inside were the pilot wheel, the rope bell pulls used for signaling the engineers, a large padded bench across the back for visitors and a stove in the center. The pilot wheels were quite large, about eight or ten feet in diameter, to provide the needed leverage for turning the rudder.

The steamboat's superstructure was made as light as possible to achieve a shallow draft. Due to the flexibility of the entire boat, the hull and superstructure required stiffening by an elaborate truss system consisting of iron rods run over the ends of long wooden posts footed in the hull. Known as hog chains these rods and posts jutted prominently through the superstructure, often at odd angles.

The fastest boats got the cream of the passenger and freight business and out of this early competition steamboat racing emerged as a "grand sport." Steamboats were often pushed beyond the limit of their endurance, and accidents due to fire, snags and boiler explosions were common. The situation became so bad that the government belatedly enacted steamboat inspection and licensing laws in the 1850s.

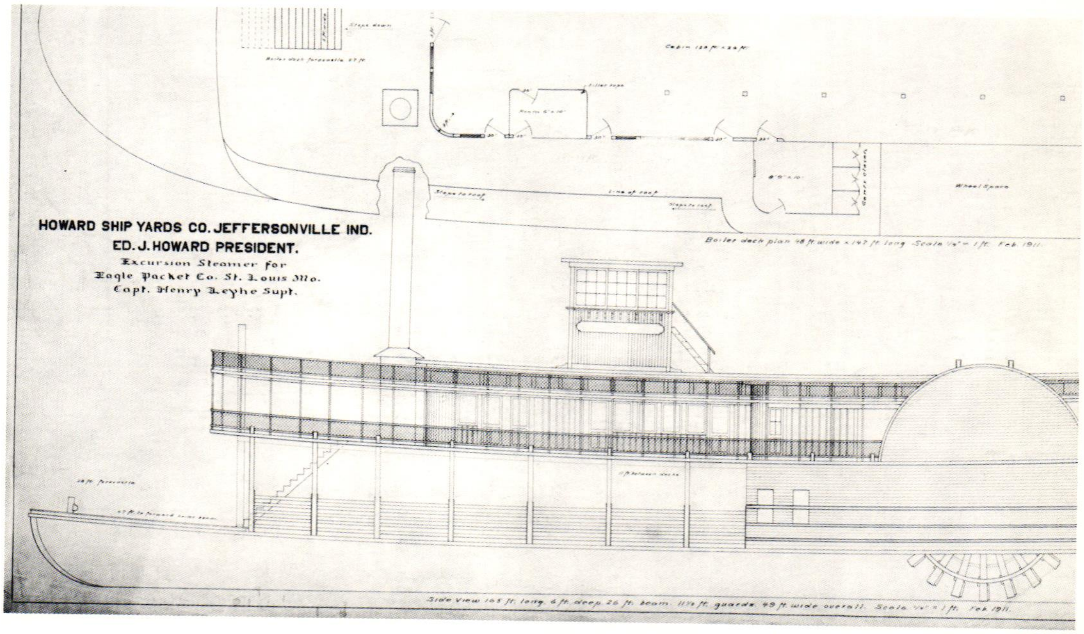
With better controls of boat construction and river traffic, the years prior to the Civil War were periods of rapid expansion into the river valleys. Where the steamboat went, settlers soon followed and towns grew up at natural division points along the rivers: Louisville at the falls of the Ohio, Minneapolis at the Falls of St. Anthony, Cairo at the Junction of the Ohio and Mississippi. Some towns grew up on land cleared by the cutting of wood for steamboat fuel. Steamboats gobbled up wood at an enormous rate, but the wood was there for the taking; no one thought of conservation in those days.

The Civil War transformed riverboating as passenger boats were taken over by the military to be packed with troops and supplies. Often fired upon from the banks, they were frequently burned to prevent their capture. Many packets were converted into "tinclad" gunboats with light sheet iron plating around their superstructures. Others were armored with heavy wood. The South even used some "cotton clads" in which the superstructure and engines were protected with piles of cotton bales. As the Civil War ended, steamboating was beginning to decline, yet the finest, fastest packets were built during this period. Railroads were slow in coming to the lower Mississippi Valley and the life peculiar to the people of the lower river didn't change quickly.

The character of inland river commerce was nevertheless changing rapidly in the 1880s. Pittsburg coal was in demand in New Orleans; lumber and grain from the Midwest were needed in the South; the railroads had absorbed the majority of the passenger and mail trade and river traffic began to depend for its survival on the economical transfer of heavy tonnage. By the end of the 19th century, sternwheel steamboats, especially designed for handling tows of barges, were introduced, and this expansion of barge operations was the beginning of modern towing. In the early decades of the 20th century, the Ohio, the upper Mississippi and the Tennessee were turned into slack water "canals" by a system of locks and dams which provided a minimum channel depth of nine feet. The development of today's multi-million dollar towing industry was assured.

The largest sternwheel steamboat ever built is the new 379-foot long Mississippi Queen. It can carry 400 overnight passengers and, unlike any of its predecessors, the new Queen has elevators, a swimming pool and a movie theater, while retaining such traditional features as sternwheel propulsion and a steam calliope.

Old-time steamboats ran on man power as well as steam. All freight was loaded and unloaded by a large crew of roustabouts, each paid a dollar a day and compelled to work under conditions that would be considered inhuman today. "Automatic stokers" existed in the form of brawny men who fed the furnaces by hand. Today's steam excursion and tourist boats capture the nostalgia while eliminating the hardships of the old labor-intensive boats. These new, safe pleasure boats and the few remaining dock-bound "showboats" only dimly recall the wildly vital early days of steamboating on the Mississippi.


HOWARD SHIP YARDS CO. JEFFERSONVILLE IND.
ED. J. HOWARD PRESIDENT.
Excursion Steamer for
Eagle Packet Co. St. Louis Mo.
Capt. Henry Leyhe Supt.
Wheel Space
Steps to roof
Boiler deck plan 48 ft. wide × 147 ft. long Scale ¼" = 1 ft. Feb. 1911.
Side View 165 ft. long. 6 ft. deep. 26 ft. beam. 11½ ft. guards. 49 ft. wide overall. Scale ¼" = 1 ft. Feb. 1911.

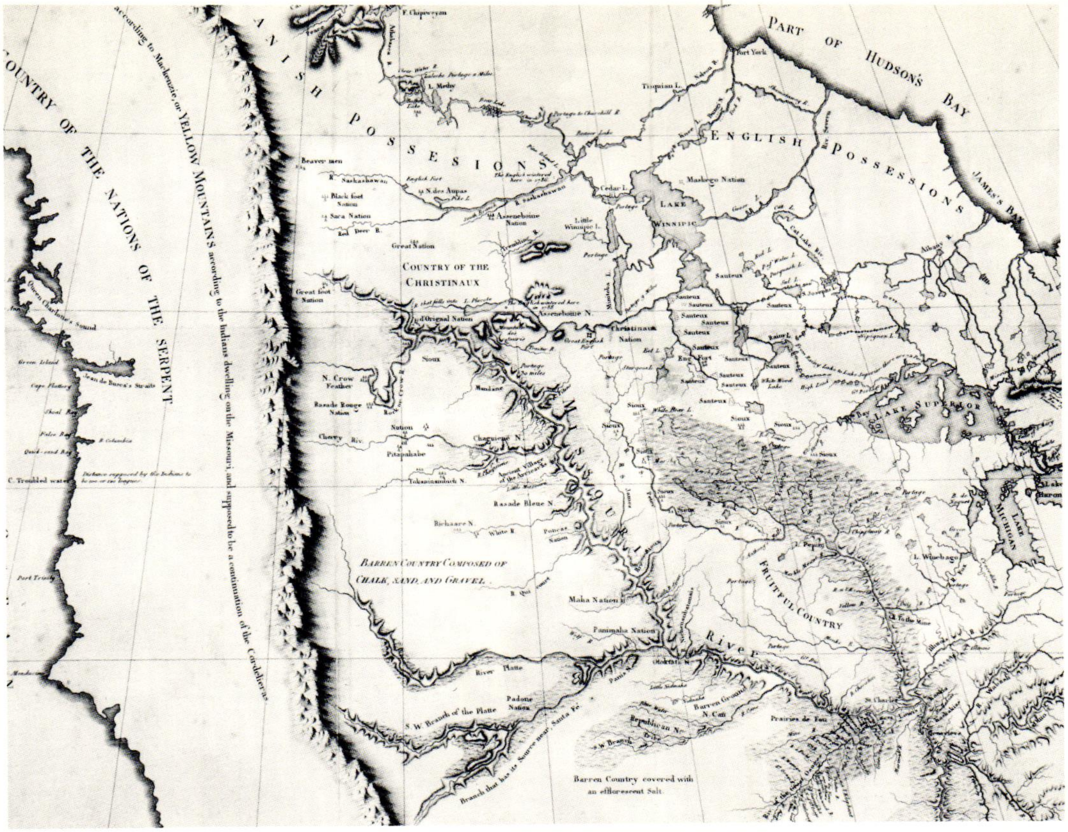
Howard Shipyard Company drawing for *Excursion Steamer for the Eagle Packet Co.,* St. Louis, 1911
Collection: The Lilly Library

The Lilly Library has a collection of more than 4,000 drawings from the Howard Shipyard in Jeffersonville, Indiana. Riverboat architecture never achieved the refinement of that of eastern sailing vessels, yet these drawings have a directness and clarity that must have greatly facilitated construction of these boats.

George H. V. Collot
Map of the Missouri and Higher Parts of the Mississippi, (detail), 1796-1805
Collection: Louisiana State Museum

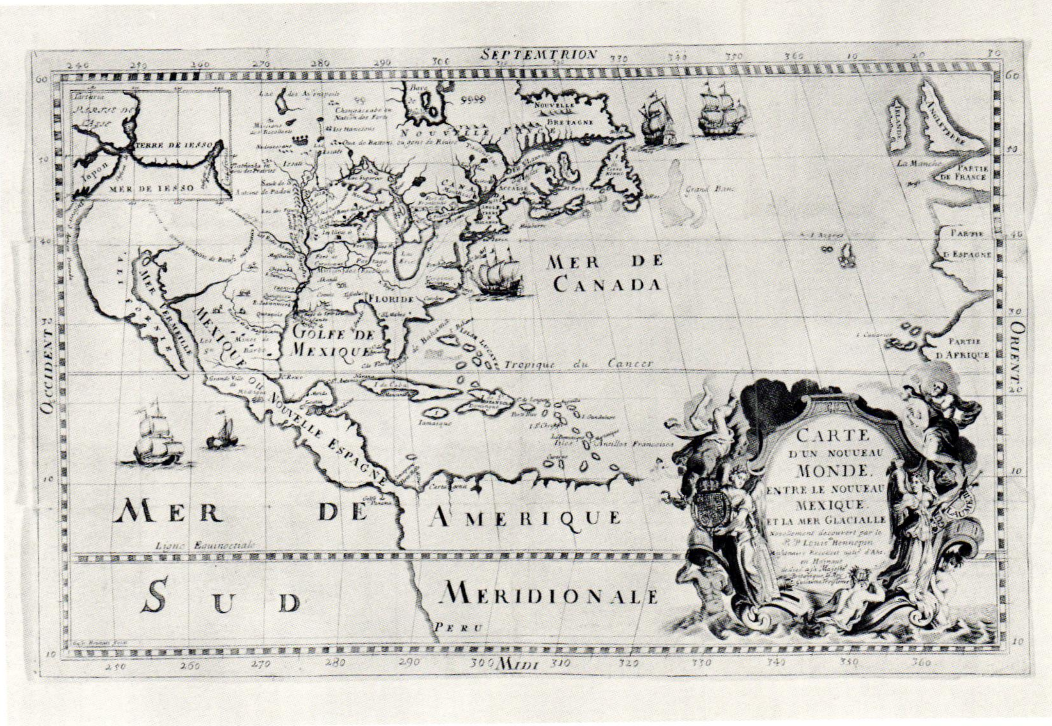
This map has little new to offer in the immediate vicinity of the Mississippi River, but an immense amount of new information to the West and North, the region of the Great Plains and Hudson Bay to the Arctic Ocean. This new information encouraged westward expansion of the fur trade.

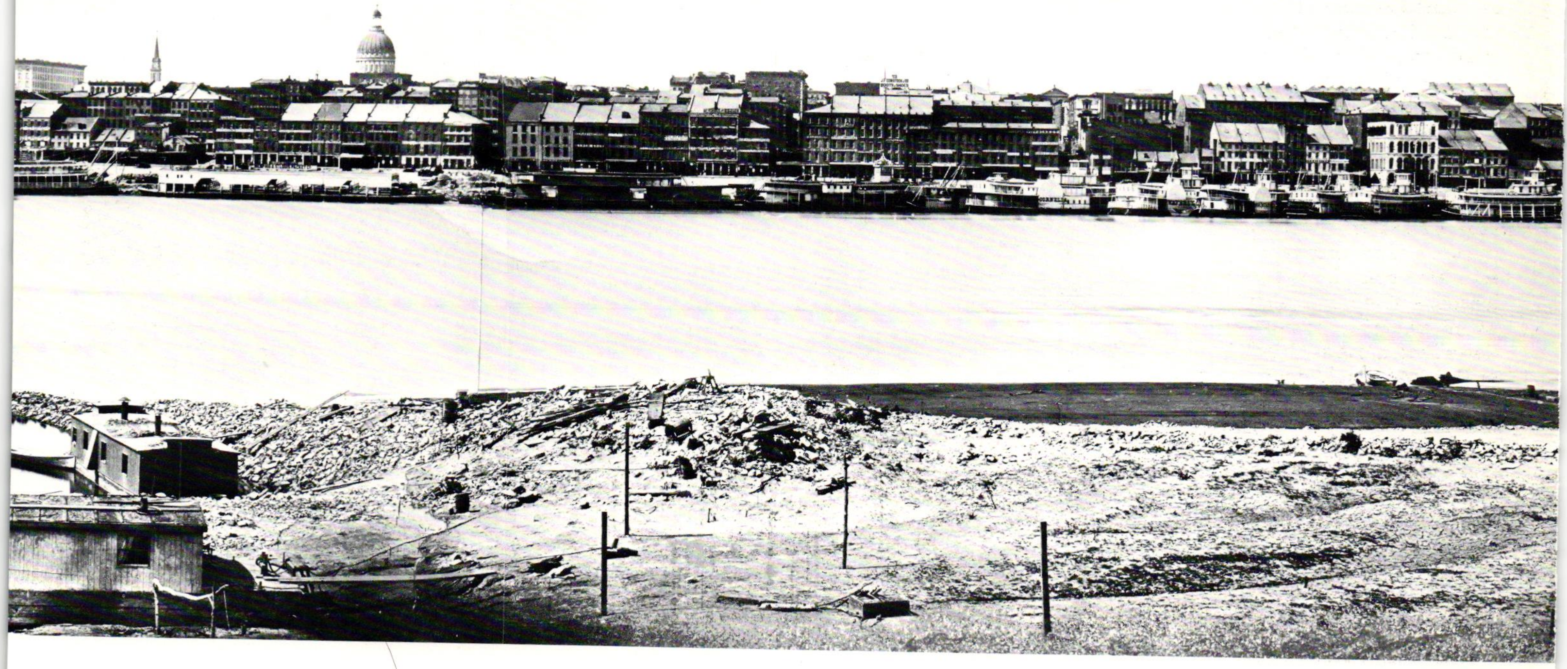
Most impressive is the added information on maps and atlases about the "look" of the land rather than more accurate detail about the locations of mountains and rivers. Value judgments describing areas as "fruitful" or "barren" should not be seen as right or wrong. What is interesting is how long many such labels stuck in the minds of the general public.

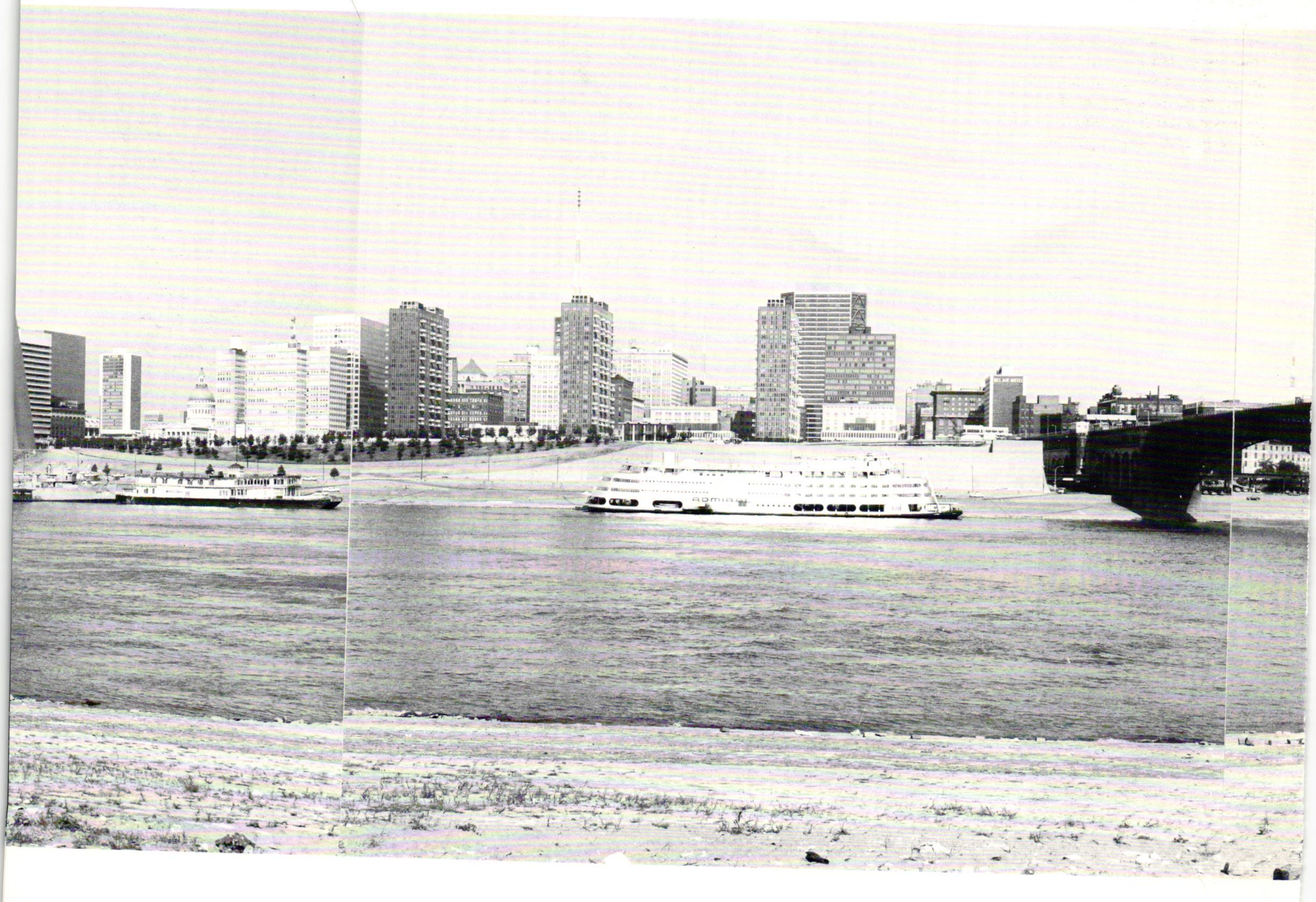


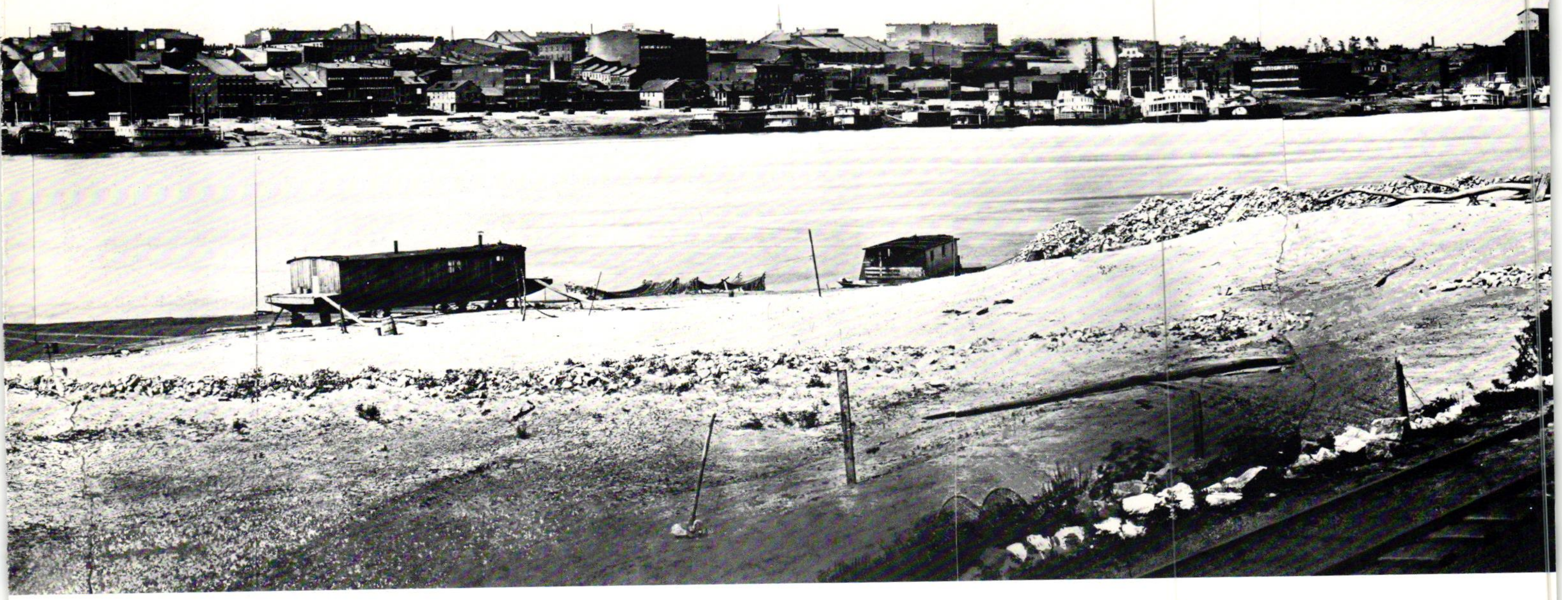
Louis Hennepin
Carte d'Un Nouveau Monde
1698
Collection: Minneapolis Athanaeum

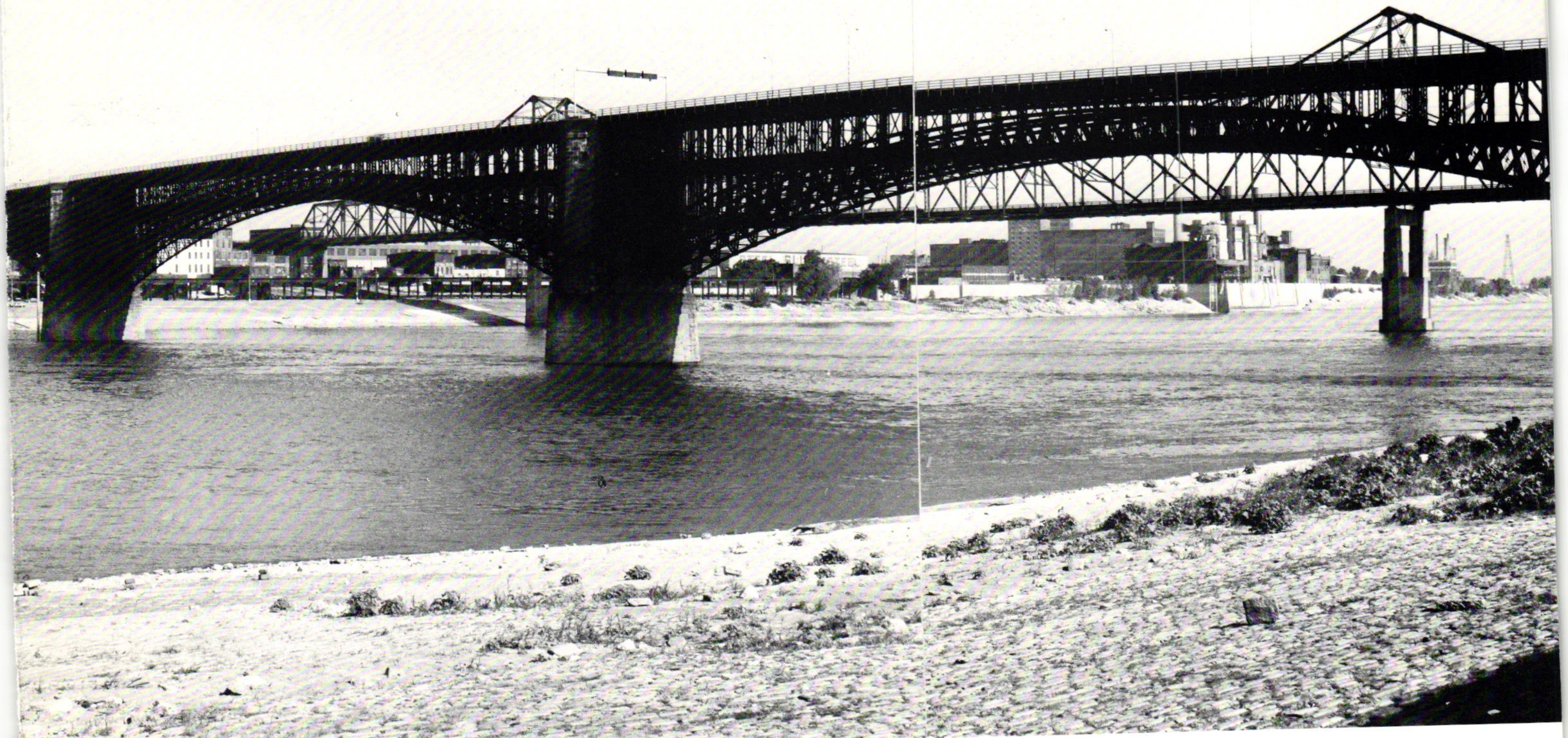
This map delineates the Mississippi in its entirety for the first time, and shows it in correct orientation and scale relative to other continental features. Its references to the Ooyo River (Ohio) and the Akanssas (with the location of the Missouri) are important.







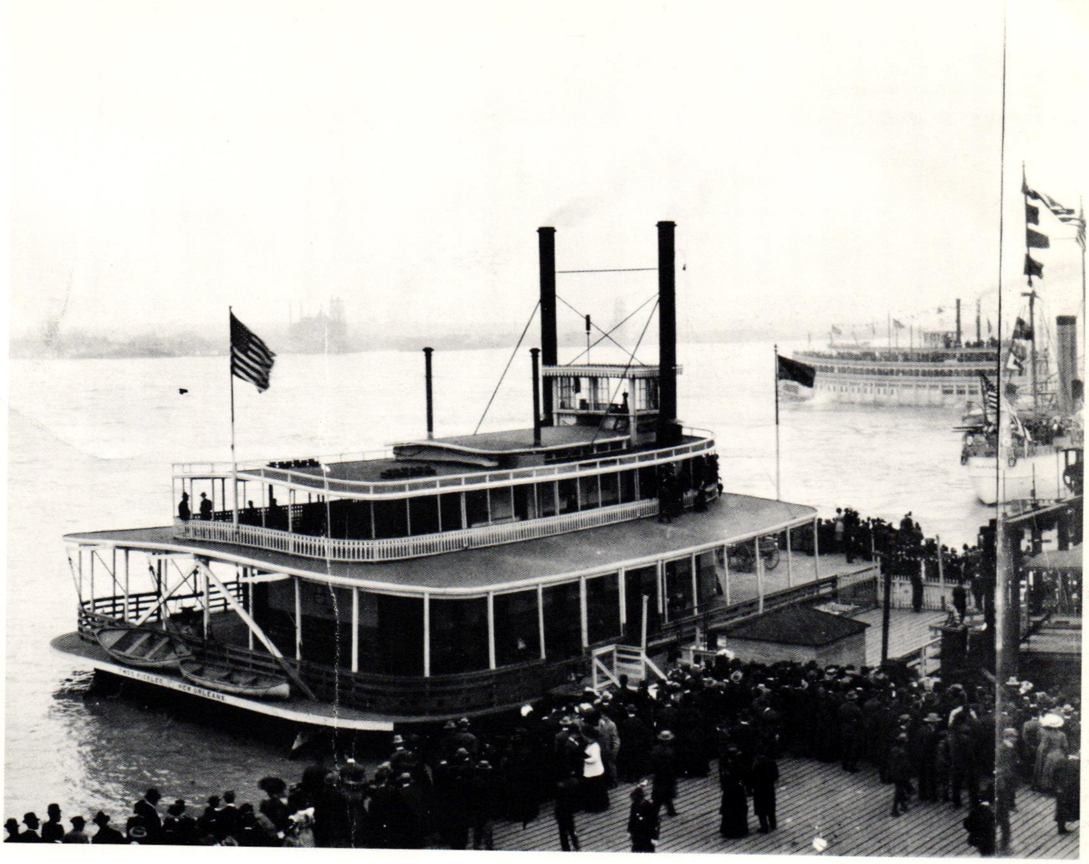


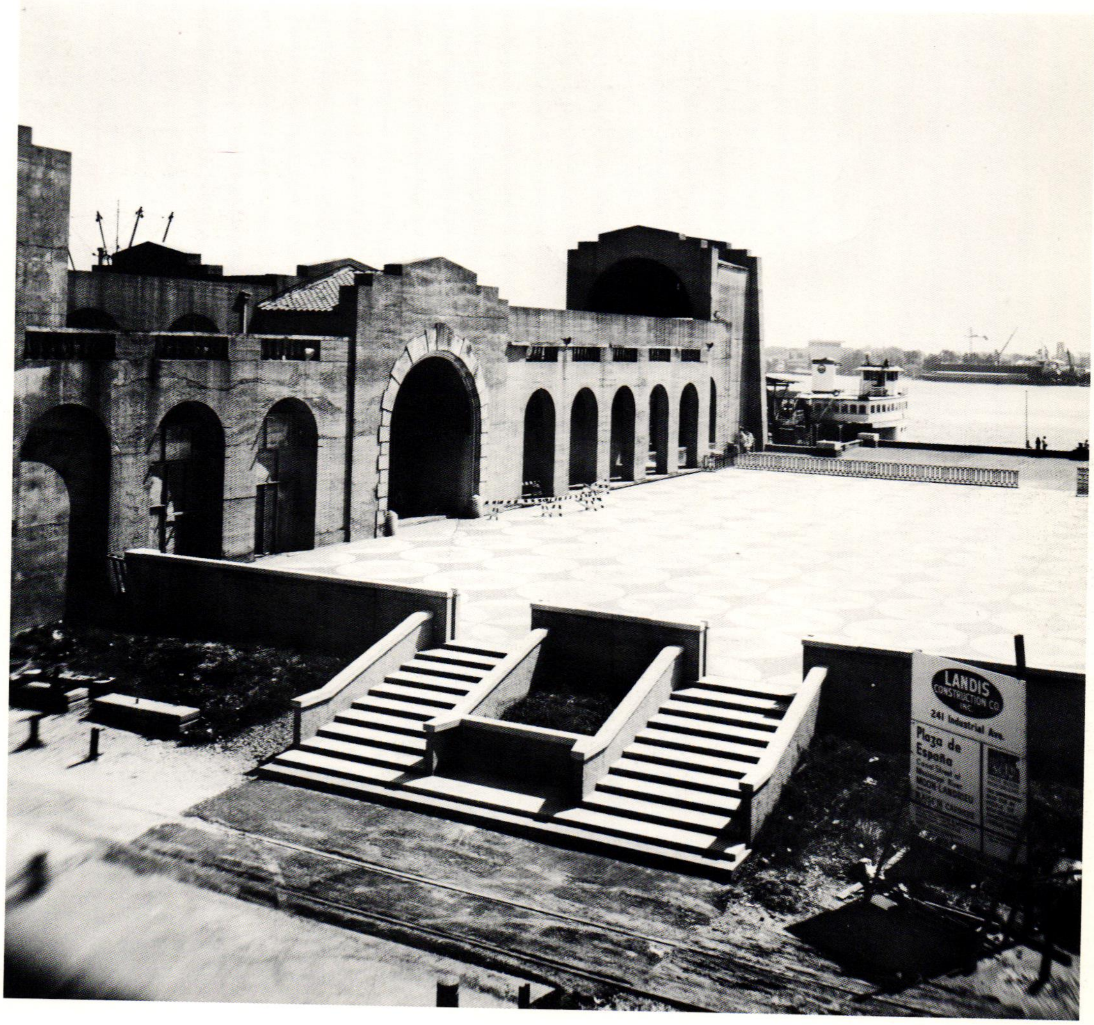


A. L. Barnet
Panorama of New Orleans,
(detail), 1910

Stephen Duplantier
Panorama of New Orleans,
(detail), 1976

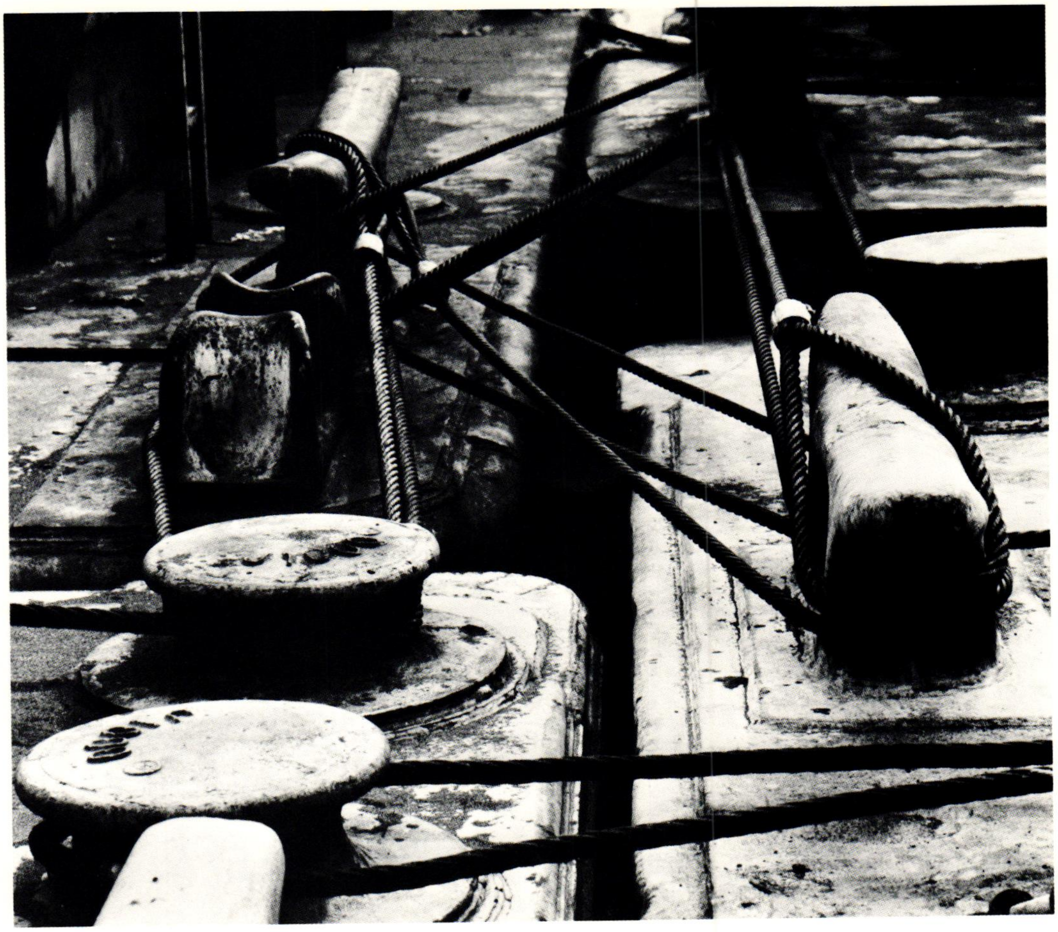
The arched building is the ferry landing, with the ferryboat Thomas Jefferson in port. The Plaza de España is currently under construction.

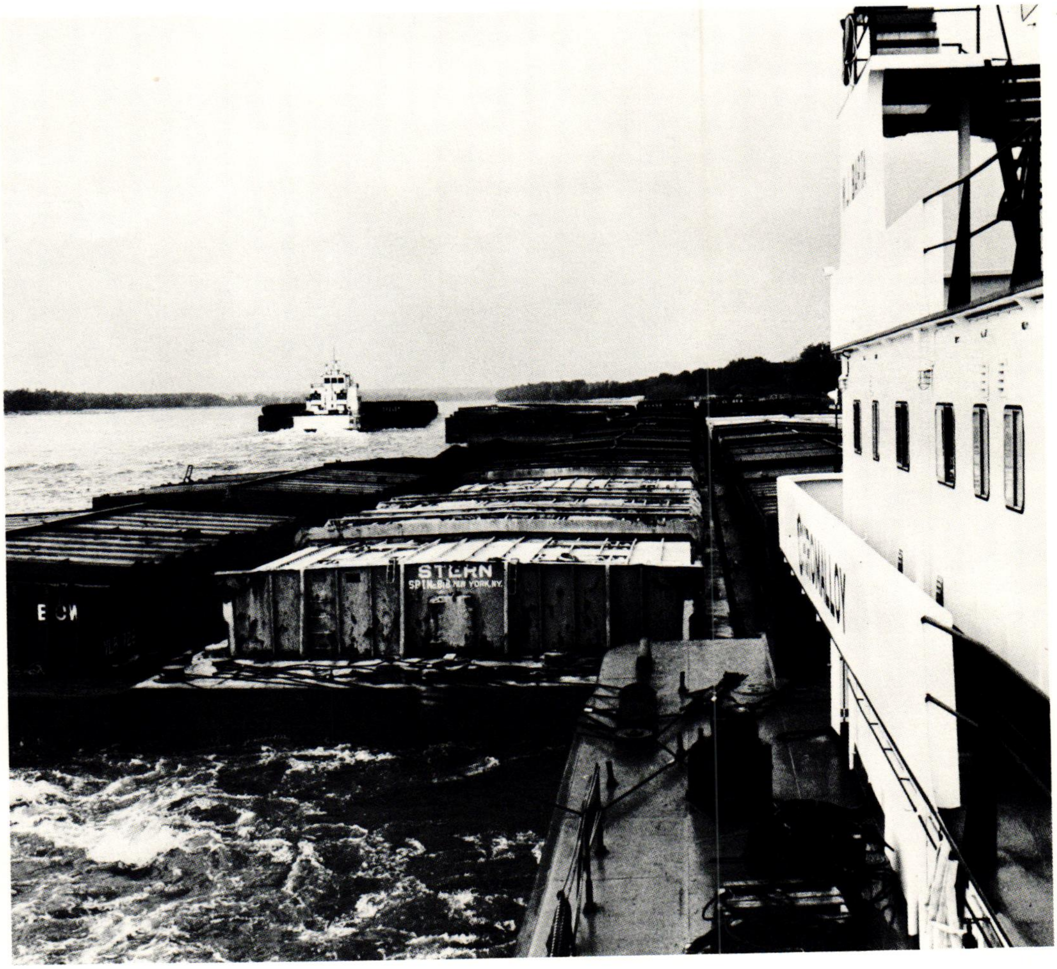



LANDIS
CONSTRUCTION CO.
INC.
241 Industrial Ave.
Plaza de España

David Plowden

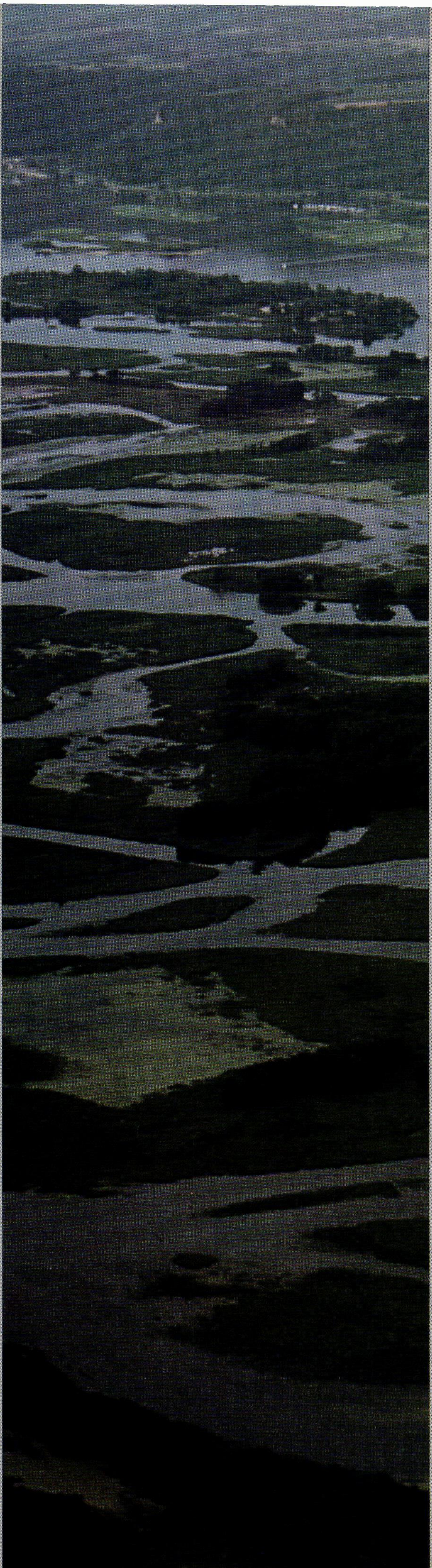
Three photographs from a series taken in August 1974 aboard the towboat W. J. Barta, on a journey upriver from Memphis to St. Louis.




STERN
SPIN-BAR NEW YORK, N.Y.
E C W
W. J. BARTA

Three groups of architects were invited to respond to the issue of Minneapolis's central riverfront area, specifically Nicollet Island and its adjacent shorelines. This publication's deadline did not allow inclusion of their proposals in final form—these will be on view in the exhibition. However, the architects' descriptions and visual documentation present a clear indication of three distinct attitudes towards a solution for this critical urban riverscape.

Members of the Minneapolis '76 Commission staff who provided background material for this project and worked on the development of its program include: Robert Viking, Director; John Burg, Director of Urban Design for Minneapolis; and Tim McCoy, Urban Planner. We would also like to thank Robert C. Moffitt, Director of Planning and Development for Minneapolis and Thomas A. Thompson, City Coordinator, for their interest and assistance.



IV AN ISLAND IN THE RIVER

> Sometimes the water widened like a sea so that one could not discern the dim shadow of the farther shore . . . You never knew what lay ahead of you . . . That was part of the fascination of it . . . Mystery always lay just around the corner of the next bend.
>
> Edna Ferber *Show Boat*

Nicollet Island: A New View Mildred S. Friedman 74

Studio Works 76

The Institute for Architecture and Urban Studies 80

The Hodne/Stageberg Partners, Inc. 84

Nicollet Island: A New View

Mildred S. Friedman

River imagery is explored in this exhibition as it exists in painting, prints, photography, maps and, indirectly, as it occurs in planning and architecture. Though architecture does not immediately reflect an image of the river, the character and course of the waterway affects the forms and functions of architecture related to it and conversely, future river imagery may be the consequence of architectural proposals made today. As a part of this exhibition's overview of the Mississippi, the City of Minneapolis and the Art Center have joined to commission three groups of architects to develop design concepts for Minneapolis's central riverfront area, primarily Nicollet Island and its adjacent shorelines.

A 48-acre prime site in the Mississippi, this Island has been for all practical purposes neglected or ignored by generations of urban designers. Despite its strategic location adjacent to Minneapolis's central business district—it affords spectacular views of the river and the city—nothing of genuinely enduring public significance has been constructed on it or on neighboring Boom Island.

In 1972, the City published a Comprehensive River Plan and formed the Minneapolis '76 Commission, whose major task is to plan and implement designs for the riverfront district. More recently, in an effort to coordinate all river planning activity, the Minneapolis Planning Department, the Minneapolis Park and Recreation Department and the Minneapolis Housing and Redevelopment Authority have joined to develop basic design guidelines for this area, and city funding was allocated for shoreline improvements and basic preservation. At this fluid stage in the master planning, new concepts for the riverfront can be introduced that could determine the future shape of the entire region.

Riverfront redevelopment by the city has involved:

1) Main Street—relaying of existing cobblestones on this narrowed street that runs along the northern bank of the central riverfront, and the widening of its north sidewalk to accommodate trees, lighting and appropriate street furniture.

2) Lower Nicollet Island—a grass amphitheater has been constructed as a temporary recreational open space to accommodate various Bicentennial activities.

Planning for other riverfront sites is in the preliminary stage with the exception of a private development on Main Street that includes the adaptive reuse of industrial buildings for commercial, entertainment and housing functions.

A new view of the central riverfront should be based on an awareness of its history—a history centered around St. Anthony Falls, the only waterfall on the great river. Located below Nicollet Island, the Falls were the power source for the small 19th century flour milling and lumber village of St. Anthony, later absorbed by Minneapolis.

The subsequent neglect of Nicollet Island can only be understood in relation to the reasons for the general deterioration of Minneapolis's central riverfront area in this century, and the reasons for the city's westward growth—away from the river—which are many and complex: Industrial sites near the Falls were quickly used up; modern transportation in the form of railroads and new electrical energy sources allowed free choice of location for growing industries; and, local economic centers diversified and scattered. Industrial activity on the river in the early days effectively precluded residential and recreational uses now viewed as genuine riverfront choices.

A further reason for the historical neglect of riverfront sites in Minneapolis—one more difficult to document—is an attitude traditionally held toward urbanization. The upper Midwest has never been a region of big cities. Chicago is the closest urban area with a large, heterogeneous population. People with a true urban bias did not settle here and in the 19th century the numbers and diversity required for city density were not present. Further, a tradition of green belts and wild, natural rivers dominated the visions of the area's early settlers, and this tradition is still very much alive. The creation of a multi-textured urban fabric has only recently become a public goal here.

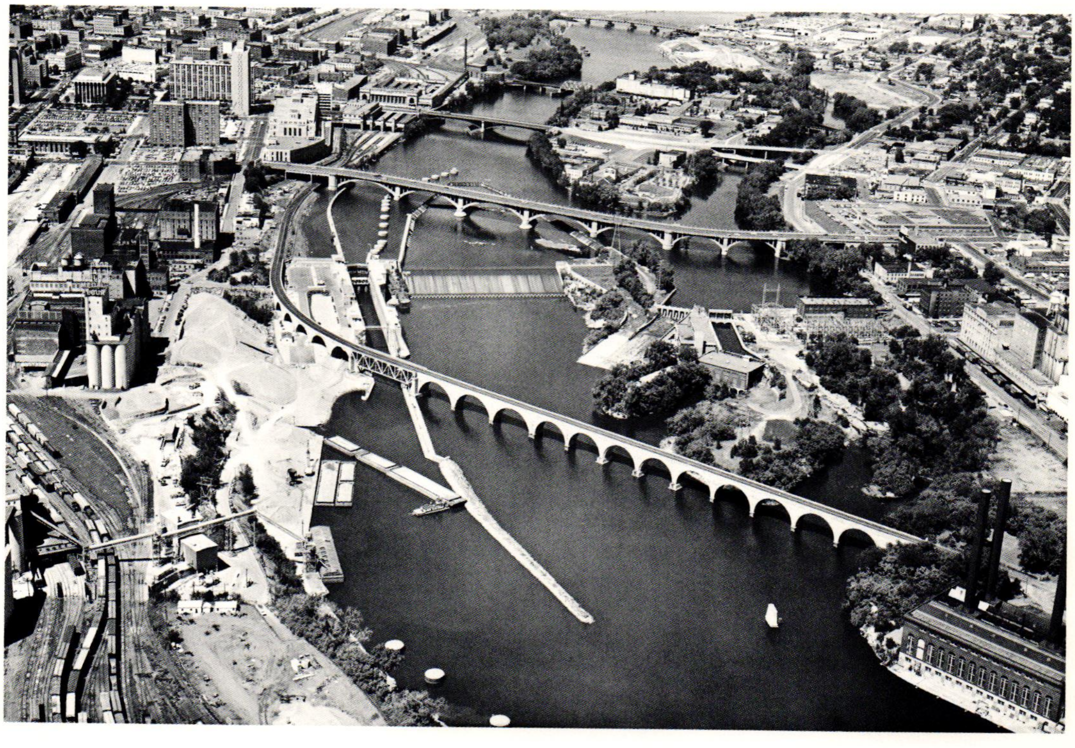
Currently, Nicollet Island is dominated by non-public, non-river related industries and activities. The Island provides a base for Hennepin Avenue. This avenue, linking north and central Minneapolis, is a vast, multi-lane, raised highway that obliterates one-third of the Island and makes the other two-thirds invisible. In fact, many people pass over this highway unaware of the separate land mass below. Nicollet Island is divided into three segments by the Burlington Northern tracks on the north and Hennepin Avenue on the south. Approximately 80 residents and some light industry occupy the northern segment; De La Salle High School dominates the central portion of the island, and the southern third is shared by the Durkee Atwood manufacturing plant and the recently constructed amphitheater.

The groups commissioned to develop plans for the Island were selected for their eminence as architects. They have widely differing backgrounds and attitudes toward the project that should produce controversial, exciting results that can lead the city toward a realizable solution. The architects are: Studio Works, Los Angeles, with partners Craig Hodgetts and Robert Mangurian and Charles Moore as a consultant; The Institute for Architecture and Urban Studies, New York, led by Peter Eisenman and Colin Rowe; and finally, The Partners, Inc., Minneapolis, directed by Thomas Hodne, Jr. and James Stageberg.

In the design guidelines for this area, the City has given priority to the development of activities that involve the participation of a broad cross-section of the public, increase awareness of the river, and provide for year-round use of the site. In addition to these issues, the architects have been asked to consider how structures of historical and architectural significance might be retained and reused, how access to the city center and the northern shore should best be accomplished, and how best to accommodate pedestrian and vehicular movement. In their proposals they have expressed a number of ideas for this riverfront site that have not previously been considered. On the pages that follow, these ideas are outlined and analyzed by the architects themselves.

By identifying major design issues and providing a public forum for them in this exhibition, we hope to create the impetus for the future revitalization of this Island. Its appearance and use are crucial to the life and quality of Minneapolis's entire central riverfront, and a solution for Nicollet Island could provide the key to answering similar questions in other cities on America's great rivers.

Don Thoen
Aerial View, Nicollet Island, 1976



Studio Works

Design Team:
Craig Hodgetts
Robert Mangurian
Assisted by:
Patricia Belton
Heather Kurze
Thane Roberts
Anna Thorsdottir

Charles Moore, consultant

Program

Over the years there have been countless proposals for Nicollet Island—but none has caught on. An image is needed that will excite both public and private developers, as a combination of the two will finally be required to energize this area of Minneapolis. The essential question is how to bring the river, and consequently Nicollet Island, into the city; past developments of the river edge have isolated housing or industry from the city. Our aim therefore is to let the city meet the river at its edge—to articulate that edge with some gradual widening of it using a number of elements described here to accomplish this end.

1) *Museum of the Mississippi*

A 2,558-foot by 25-foot landing strip of St. Cloud granite with a 30-inch by 6-foot etched channel of the Mississippi complete with all of its curves and bends and accompanied by a list of cities, wildlife, people, events and inventions. The strip extends the length of the island and, because it is flat, the land on either side is never at the same level as the strip, but slopes up or down. Alongside the etched "river" are marble monuments to significant Mississippiana: Tom Sawyer's white fence, the Spirit of St. Louis, a riverside plantation mansion, Elvis's guitar, an obelisk at Cairo and a cannon at Vicksburg. Also, buildings along the "river" contain displays such as that in an Indian mound-like glass building that houses plants, birds and trees of the Mississippi.

2) Trolley and Walkway

A trolley connects the Nicollet Mall with Main Street, with the Island in the center of the run. A covered pedestrianway runs over the trolley from the railroad station to Lourdes Square.

3) *Bridgehead Terrace*

A square between the end of Nicollet Mall and the river serves as a turn-around for the trolley at the southwest end and a visual corridor to the river. The western edge of the square is marked by a large glass office building, a twin to the Federal Reserve Bank building. At the northern end of the square is the re-used railroad station.

4) *Terminal Amphitheater*

The railroad station is converted to contain a place for performances on the Mississippi with a retractable shelter add-on. It serves as a "gateway" to the island and a landmark in Bridge Square.

5) *Lourdes Square Development*

The square contains a large indoor swimming facility. The square, containing various pavilions, is the roof of the swim and recreation area below. The backdrop for the swim palace is a giant billboard announcing events on the island, movies playing in the theaters, and other public activities.

6) *East Bank Canal Housing*

Low rise walk-up housing forms a hard edge on the east bank and serves as a backdrop for views from the island. Additional pedestrian bridges are added and parking for the public is located behind this housing, thus making the island accessible to the public all along this edge. Behind this housing the existing street grid is brought closer to the water and more housing is added. Boom Island will be the site for part of this low rise housing and it will have a small marina on the river side.

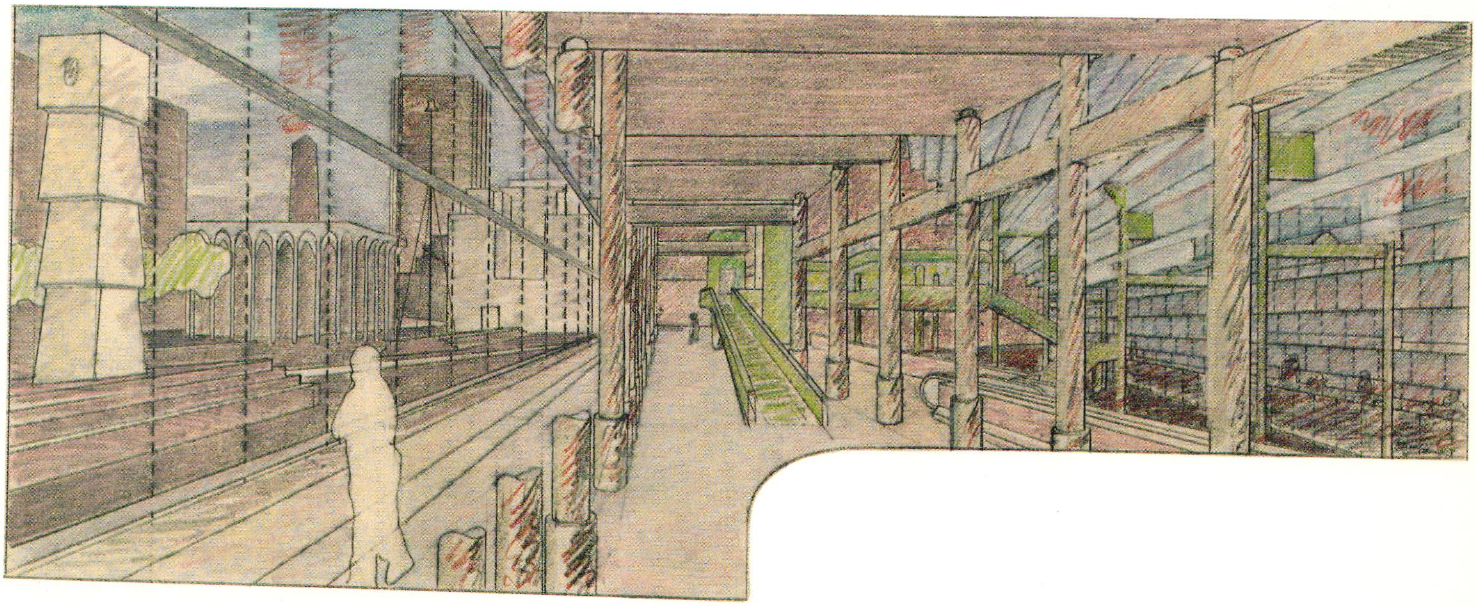
7) *West Bank Low Rise Riverside Drive Housing*

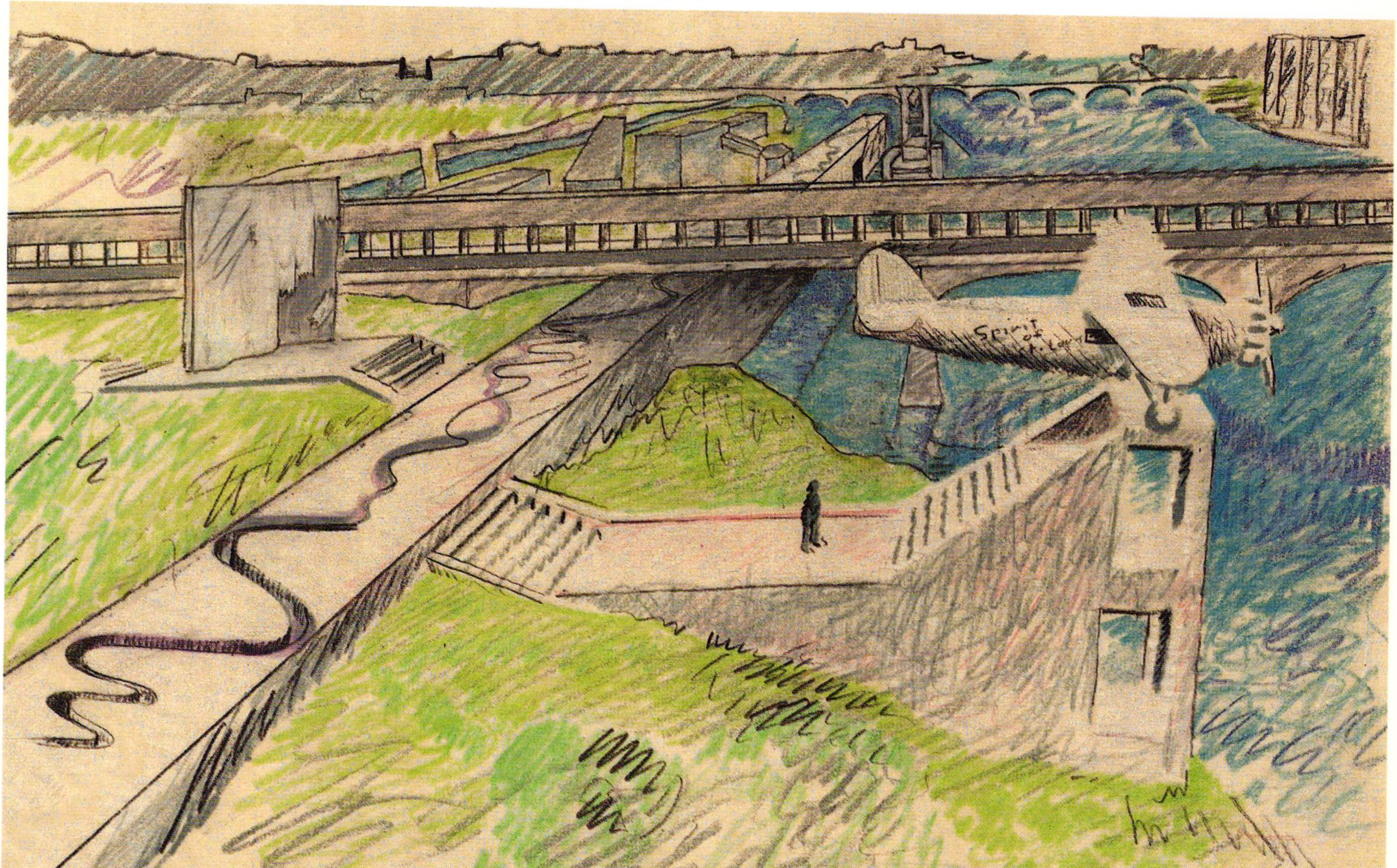
The riverside drive north of this area is extended south and is lined with housing. The area between the housing and the river is parkland containing bicycle paths and pedestrianways.

8) *Nicollet Island Hotel*

On the southern tip of the island a hotel is designed to reuse fragments of the existing buildings (Island Sash and Door and the Durkee Atwood plant). The hotel will have two silo forms on the central city side, echoing those of the river mills nearby. These circular spaces will contain restaurants and entertainment areas. The canal side will be a backdrop for the new development proposed for Main Street.

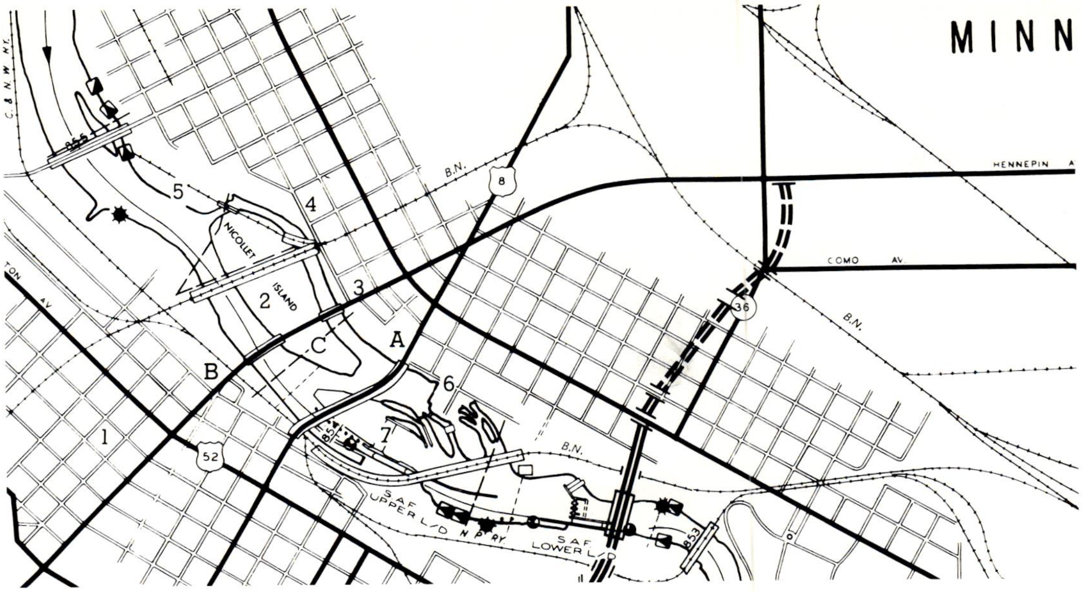
Studio Works
Drawings for Nicollet Island project:
(top)
Bridgehead Square, building interior.
and
Museum of the Mississippi




Spirit of St. Louis

Nicollet Island in the Minneapolis Context
Plan View

Legend
1 Central Business District
2 Nicollet Island
3 East Hennepin
4 West St. Anthony
5 Boom Island
6 Main Street
7 St. Anthony Falls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HENNEPIN A
COMO AV.
B.N.
B.N.
B.N.
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ISLAND
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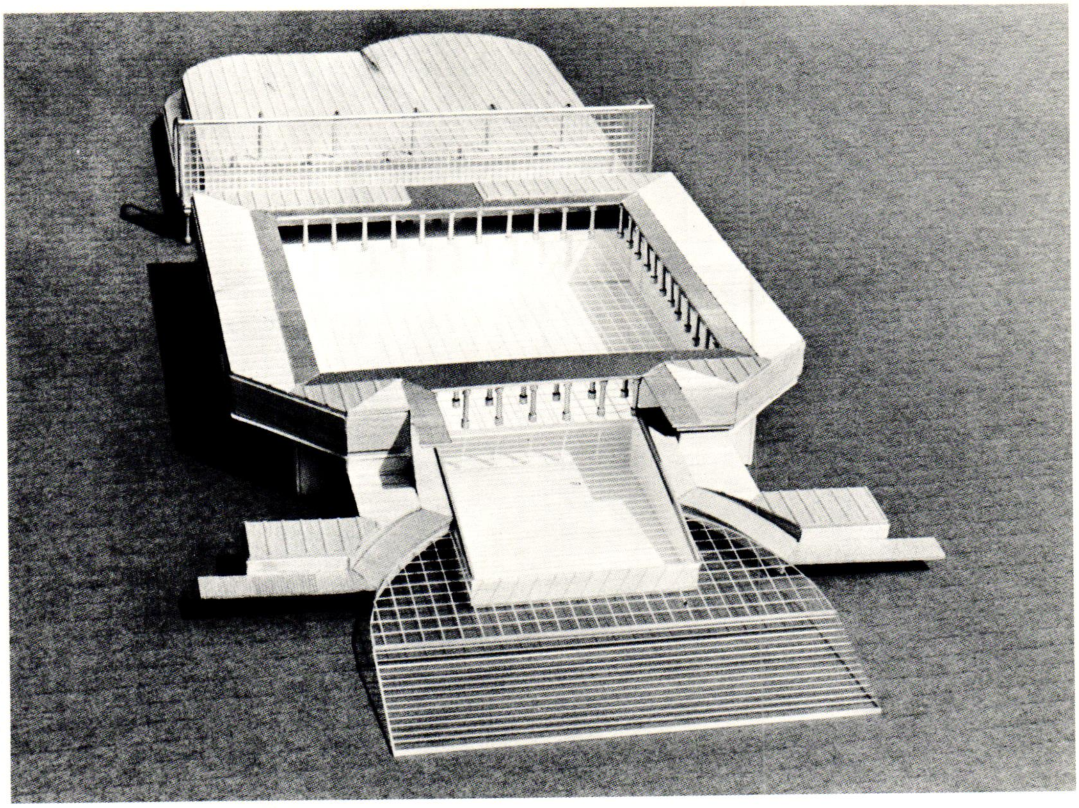
SAF UPPER L/D
N P RY
SAF LOWER L/D



A) *Swim Palace*

Various architectural elements are shown in these photographs of the models in production.

A) *Swim Palace*

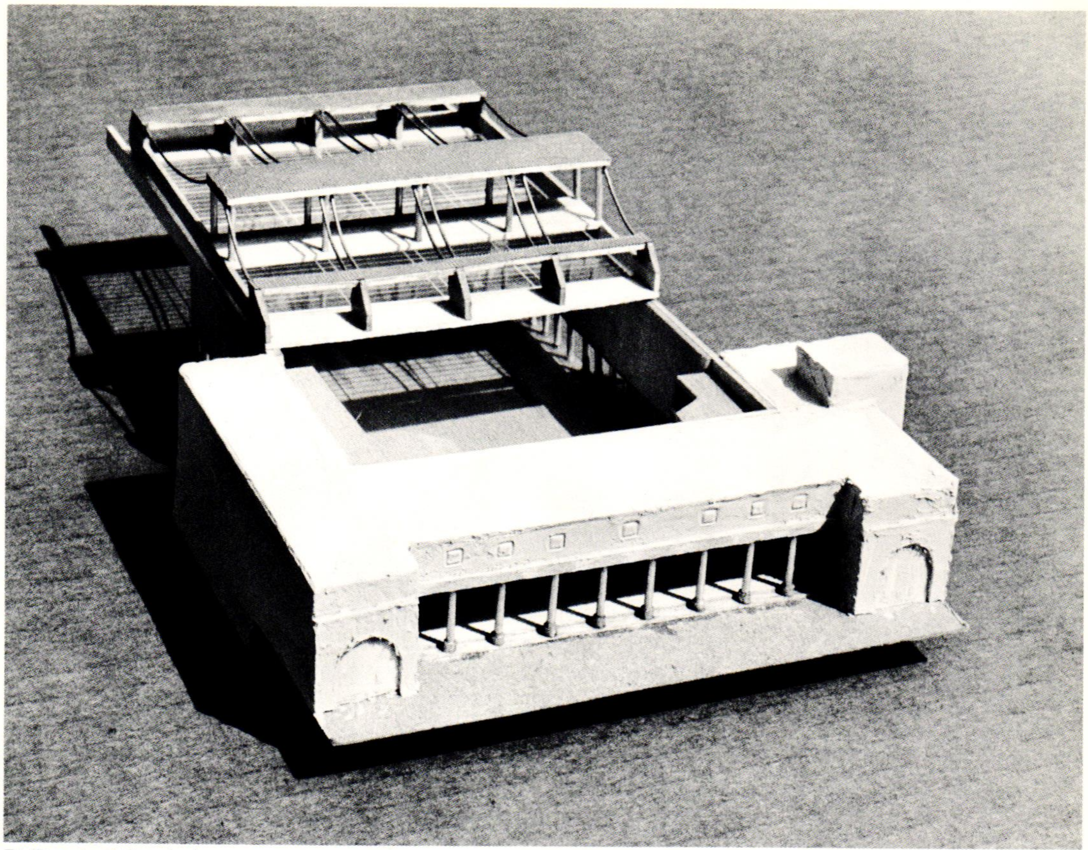
Located in Lourdes Square, this building for an indoor swimming pool also contains a theater, a roller rink and other spaces for recreation.

B) *Terminal Amphitheater*

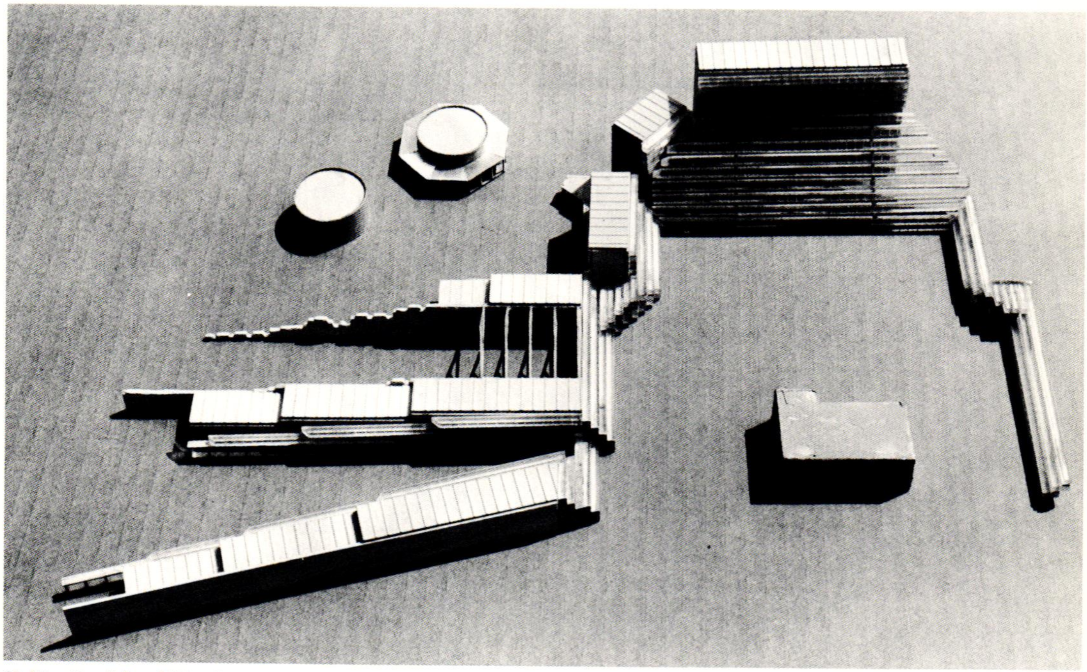
Housed in the reused Burlington Northern Railroad Station, this open-air space has a retractable shelter to be added-on in the winter.

C) *Nicollet Island Hotel*

This hotel will be in a romantic, "green" setting, with views toward central Minneapolis and Main Street.



B) *Terminal Amphitheater*



C) *Nicollet Island Hotel*

The Institute for Architecture and Urban Studies

Staff for this Project:
Institute Coordination:
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Peter Wolf

Context Design:
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assisted by John Hartley

Island Design:
Colin Rowe, Judith Di Maio,
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Project Management:
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Livio Dimitriu

Models:
Livio Dimitriu

Exhibition Team
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mentioned): Bill Strawbridge,
Andrew Anker, David Buege

The authors of this project believe it should be regarded primarily as a study rather than a prescription for Nicollet Island and its adjacent shorelines. It is some sort of attempt to discriminate configurations which seem to be latent, almost to be visible; and, by awarding them the priority which they appear to require, to sponsor intimations of identity, direction and place. In the language of Louis Kahn, it is an attempt to discover what things wish to be; and, the authors of this project believe that this wider mode of investigation (which is also a discovery of clues) is neither entirely utopian nor wholly gratuitous. Instead their mood is that of conservative-radical. They neither despise utopia nor exalt the *status quo;* but, though they are very much concerned with the dialectic of novelty and tradition, they have no anxiety to present their larger proposals as, in any way, definitive.

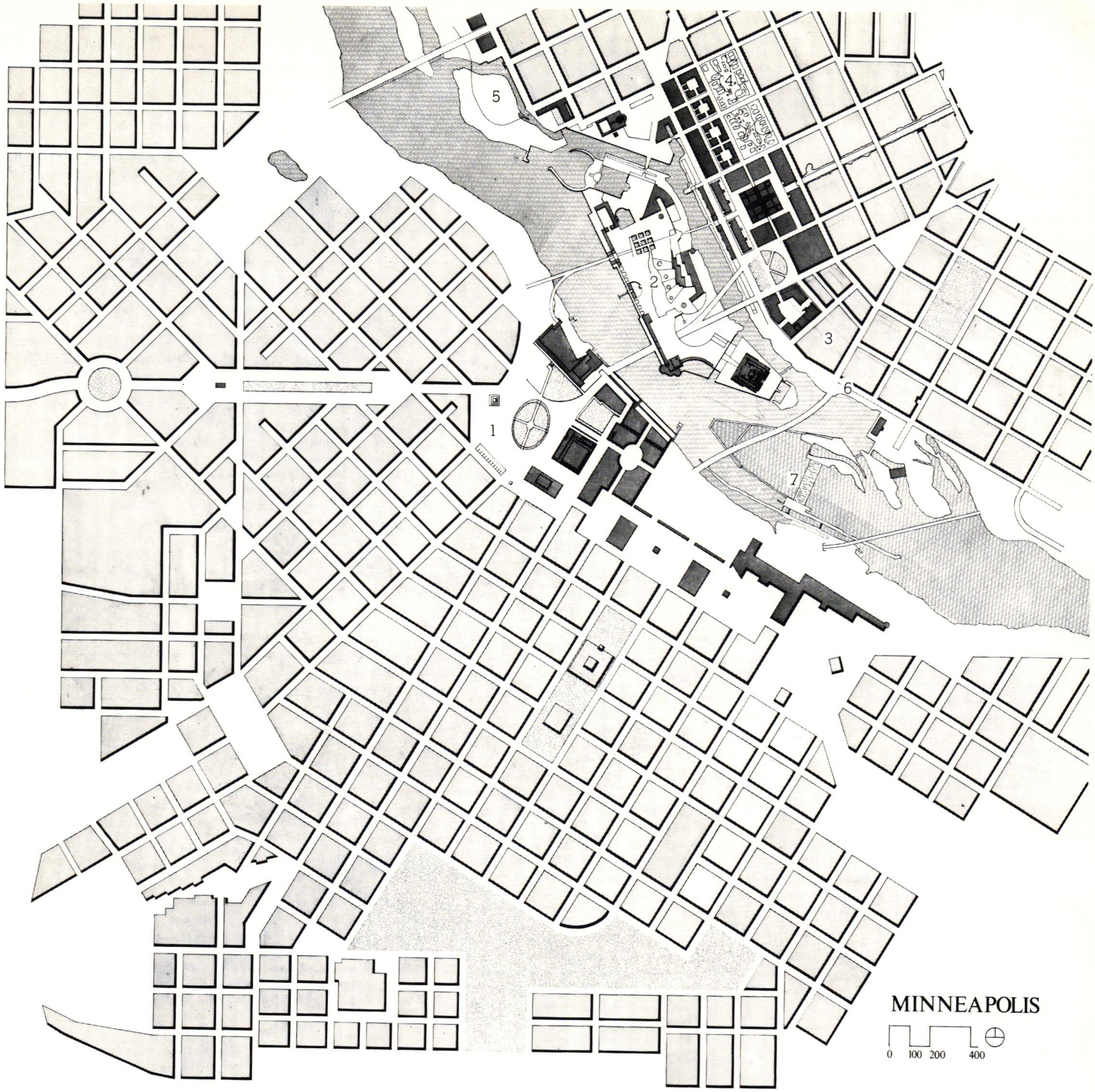
Nor do they wish their proposals for Nicollet Island itself to be regarded as any more than a strategy of approach. Nicollet Island could, for instance, become just another state park. It could, just possibly, thrive as no more than a rustic theater for family barbecues and frisbee; it could even become a bird sanctuary; but, if such might be among its only too predictable fates, it may still be imagined that the interest of Minneapolis could better be served by the entertainment of more arresting fantasies.

Islands in cities! Very few cities are privileged to possess them. Paris but not London, Rome but not Florence, Leningrad and Berlin but not St. Louis—Memphis—New Orleans; and the city so lucky as to possess an island has always been prone to regard it as something emblematic and representational—never as a casual throw away but as something intimately related to its idea of itself.

But, if traditionally one may think of the urban island as a focus of the public realm, as equipped with a cathedral or a stock exchange or several museums, the situation in Minneapolis does not allow us so to envisage Nicollet. For all this kind of thing is provided elsewhere; and, short of another university, what to do? Should the whole outfit be leased to Walt Disney Enterprises?

The Institute's team does not disparage this possibility. Indeed it is more than apt to imagine its own contribution as providing a framework for something very like this—for a pedestrian resort, a spectacular urban garden, celebrating the theme of water but also capable of presenting a variety of further stimuli— cultural, recreational, commercial, residential.

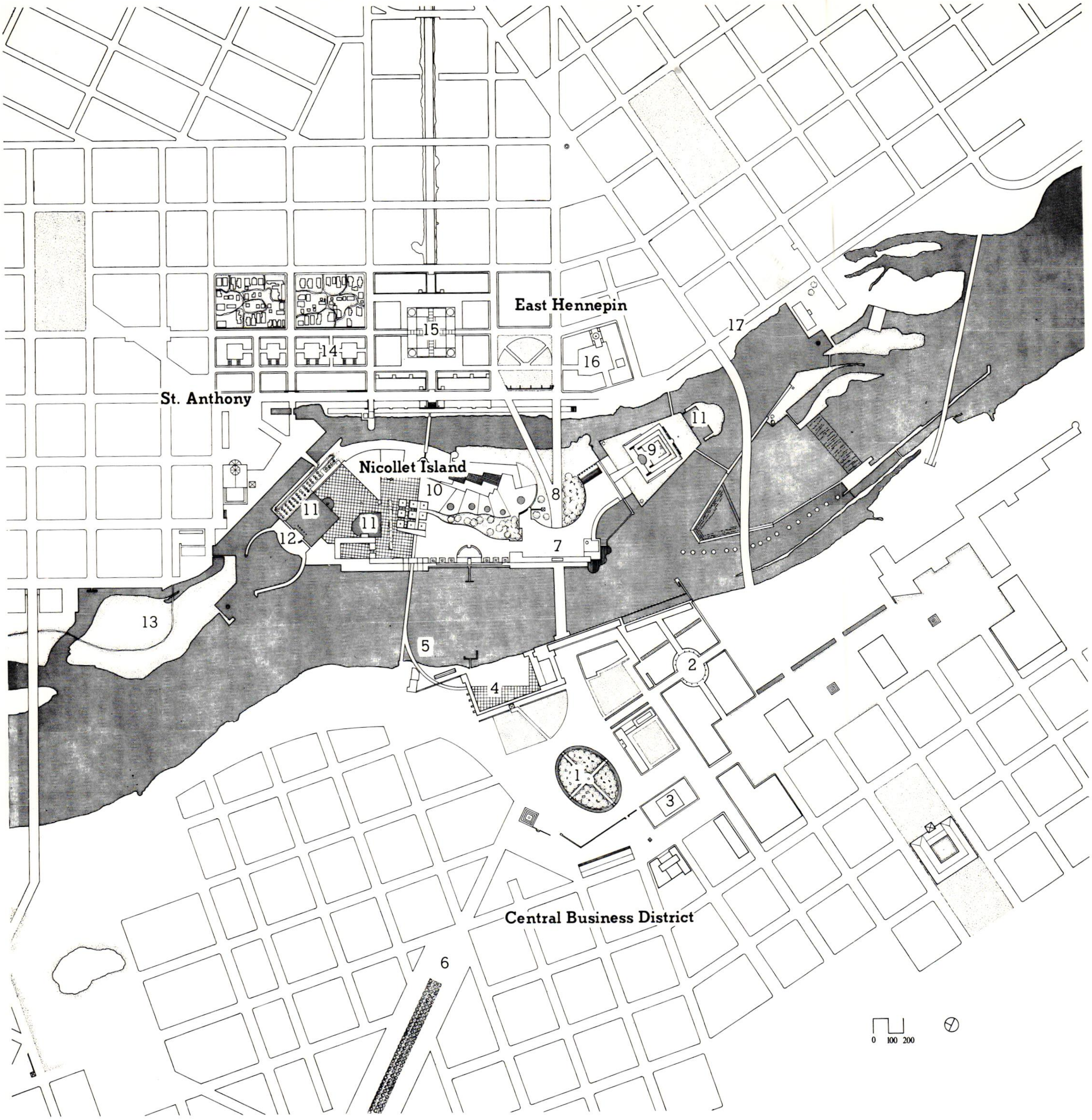
The Institute's team assumes that an idiosyncratic mix of all these uses is desirable; but, obviously, its argument is based not so much in terms of functional consideration as of archetypal image. Its members suppose that a successful interpretation of Nicollet Island will be one which stresses not so much matter of fact but rather a magical (and extravagant) profusion of reminiscence.



Nicollet Island in the Minneapolis Context
Plan View

The Institute's project anchors itself to Central Minneapolis, St. Anthony and East Hennepin by an extension of the skyway system. In Minneapolis a reconstructed depot, providing a multipurpose internal environment, serves as a point of departure for the island skyway which travels alongside the railroad bridge, crosses the island at low level, and arrives on the St. Anthony side of the river at what is thought of as a community focus—a shopping district and housing.

Legend
1 Central Business District
2 Nicollet Island
3 East Hennepin
4 West St. Anthony
5 Boom Island
6 Main Street
7 St. Anthony Falls


East Hennepin
St. Anthony
Nicollet Island
Central Business District
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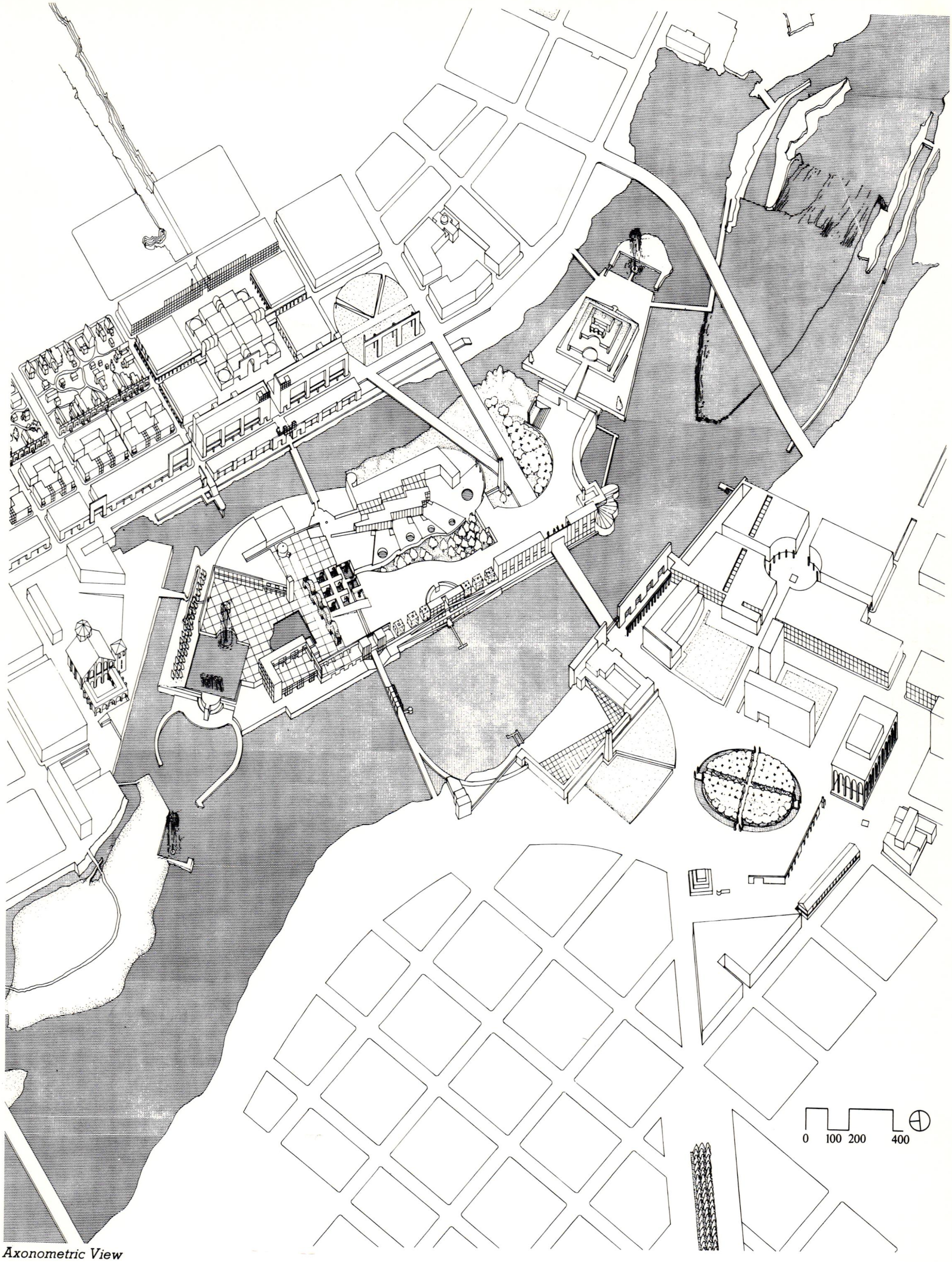
Nicollet Island and Its Adjacent Shorelines
Plan View

Legend
1 Park
2 Commercial development incorporating the Central Post Office and parking
3 Existing building by Yamasaki at the termination of the Nicollet Mall
4 Existing railroad station reconstructed for public use as a theater/commercial complex
5 Pedestrian skyway connecting the railroad station to Nicollet Island runs alongside existing railroad tracks
6 Proposed divided avenue
7 Raised terrace
8 Existing Hennepin Avenue Bridge
9 Pyramidal labyrinth
10 Gardens with pools
11 Fountain
12 Embarcadero
13 Boom Island
14 Low-density housing
15 Shopping district
16 Lourdes Square
17 Main Street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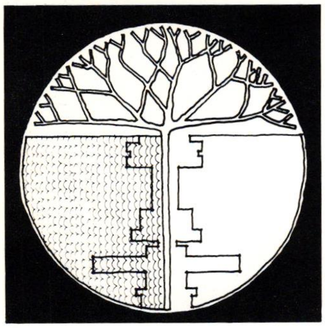
Axonometric View

The Hodne/Stageberg Partners, Inc.



Design Team:

Thomas Hodne, Jr.,
Design Director
James Stageberg,
Collaborator
Jim Pettinari,
Team Coordinator
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Glenn Brode
Rick Christensen
Kerm Crouch
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John Titus
Jeff Westcott

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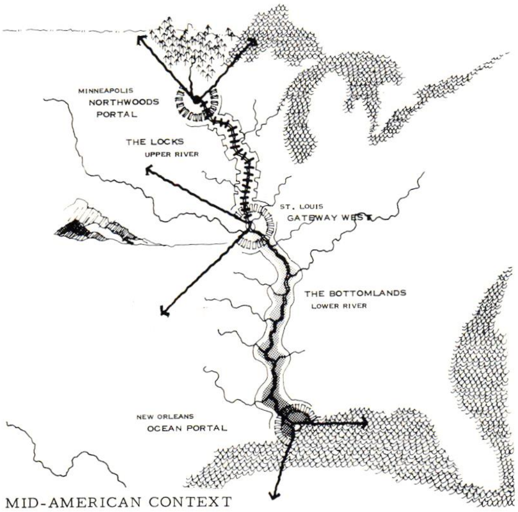
Mark Erickson
Tom Fabick
Mod Feders
Dan Feidt
Ramy Gill
Dick Heise
Barb Jeska
Roger Kipp
Chuck Koosman
Neil Libson
Tom Meyer
Milt Powell
Lucy Stageberg
Jim Taplin
Dave Warner

Introduction

Before being lost to the upriver advance of St. Anthony Falls, "Spirit Island" existed just downriver of Nicollet Island; both were believed to have powerful Earth Spirit qualities by early native Americans. "Urban" development of the Nicollet Island/riverfront area began in the 1820s with the mills and continued for 150 years until the 1970s when much of the island was cleared for redevelopment. This design concept attempts to reflect the many faces and moods enjoyed and suffered by the island—yet responds to today's realities and to the projected changes on the urban edges. Thus, the design spectrum encompasses a variety of functions and forms placing central Minneapolis once again at the leading edge of the new urban environments.

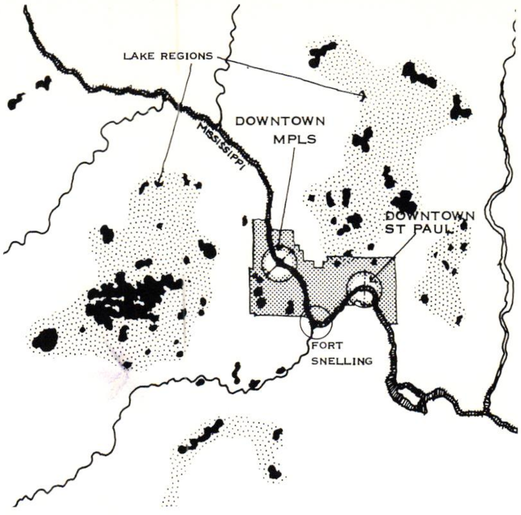


MID-AMERICAN CONTEXT

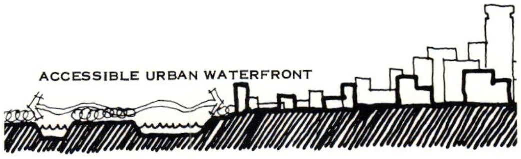
Design Approach

Seeking out guidelines or "clues" to give direction to the island's development, our design team studied its historic/geographic/urban pattern context. One constant that surfaced in all of these contexts was the direct relationship between the island (primarily the south tip) and St. Anthony Falls, some 300 feet downriver.

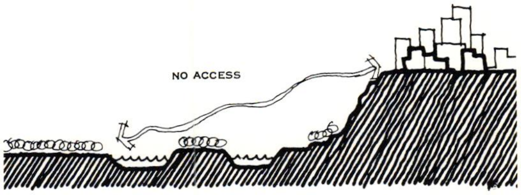
Mid-America/River Context: The Mississippi River has three parts: lower Mississippi "bottomlands," upper Mississippi locks and dams and northwoods. Nicollet Island/St. Anthony Falls is located at the top of the steps (locks, dams, pools)—gateway to the Northwest—at the interface of the northwoods and the commercial river.



METROPOLITAN CONTEXT



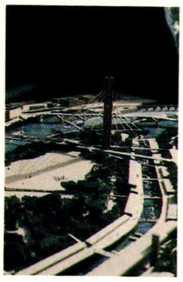
SECTION @ NICOLLET ISLAND: MPLS DOWNTOWN

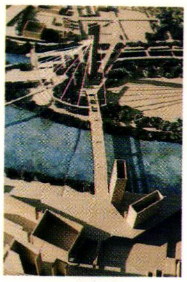


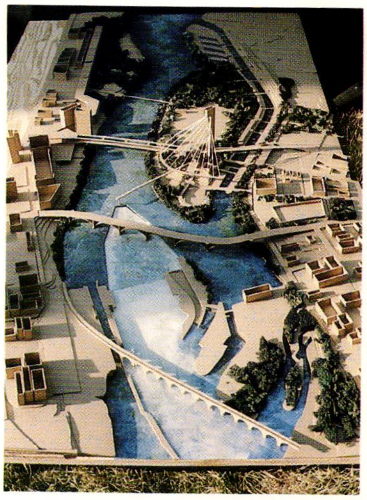
SECTION @ NAVY ISLAND: ST. PAUL DOWNTOWN

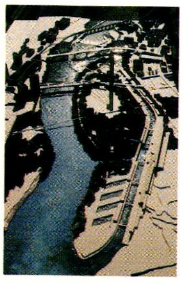
Metropolitan Context: Our metro area has many lakes, rivers and water edge resources, but only two islands are located within a major urban center context: Nicollet by central Minneapolis and Navy by central St. Paul. Nicollet Island is functionally and psychologically more accessible than Navy.

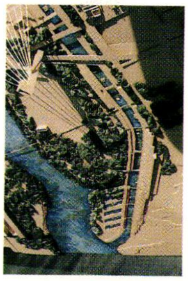
Central Minneapolis Context: Nicollet Mall Continuum: An opportunity to continue the Mall to and across the island to reconnect downtown to its early river edge locations. Development/Catalyst/Focus: Because of its strategic location within central Minneapolis, Nicollet Island can serve as catalyst and focus for the existing development "void" at the river edge, the north loop and Industry Square.

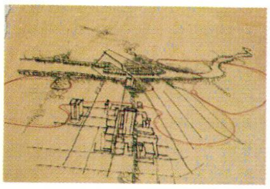


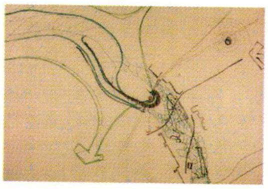


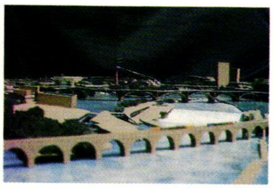


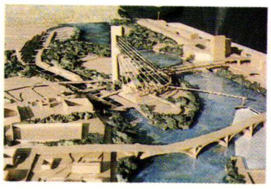


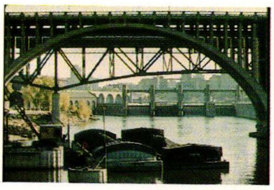


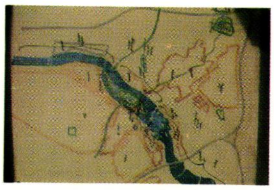


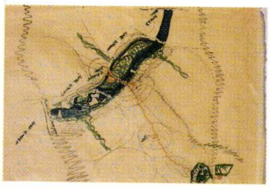


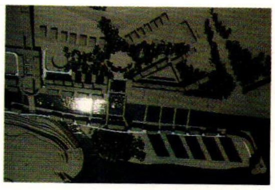


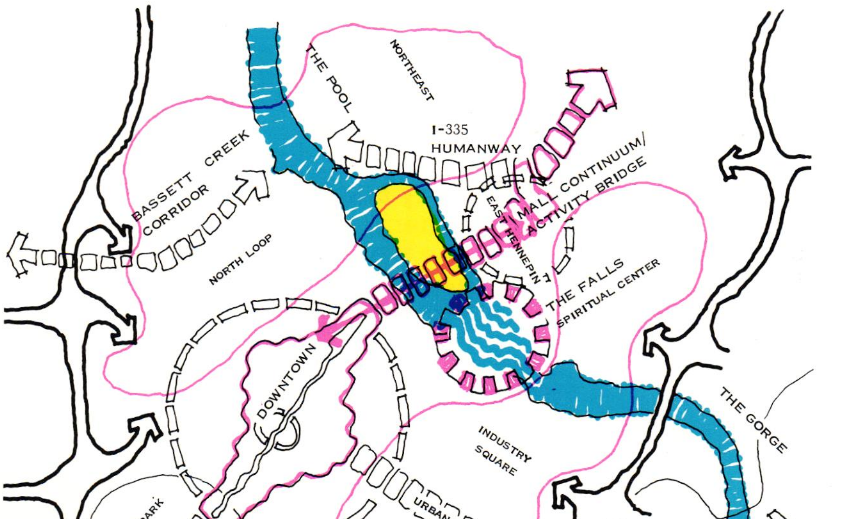




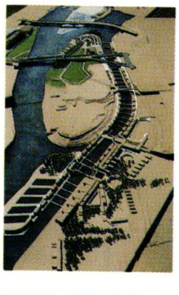


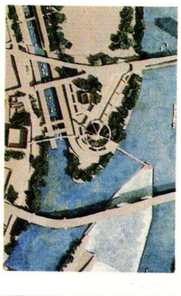


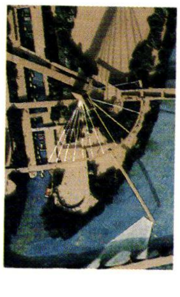


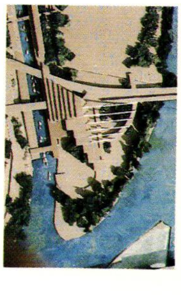

THE POOL
NORTHEAST
I-335
HUMANWAY
BASSETT CREEK
CORRIDOR
EAST MALL CONTINUUM/
ACTIVITY BRIDGE
EAST HENNEPIN
NORTH LOOP
THE FALLS
SPIRITUAL CENTER
DOWNTOWN
INDUSTRY
SQUARE
THE GORGE
LORING PARK
URBAN SPINE
U OF M
FREEWAY MOAT

CENTRAL MINNEAPOLIS CONTEXT









The Art Center invited a group of artists, identified with various salient contemporary directions, to create works related to the Mississippi River theme.

The responses of these artists, on view in the Art Center's galleries, utilize the Mississippi as a point of departure for highly subjective interpretations. Because of the publication deadline, the completed works are not fully illustrated. The characterizations of each piece that appear in this text were prepared primarily on the basis of sketches by the artists and extensive interviews with them.

V 20TH CENTURY IMAGES

> I do not know much about gods; but I think that the river
> Is a strong brown god—sullen, untamed and intractable . . .
>
> T.S. Eliot *The Dry Salvages*

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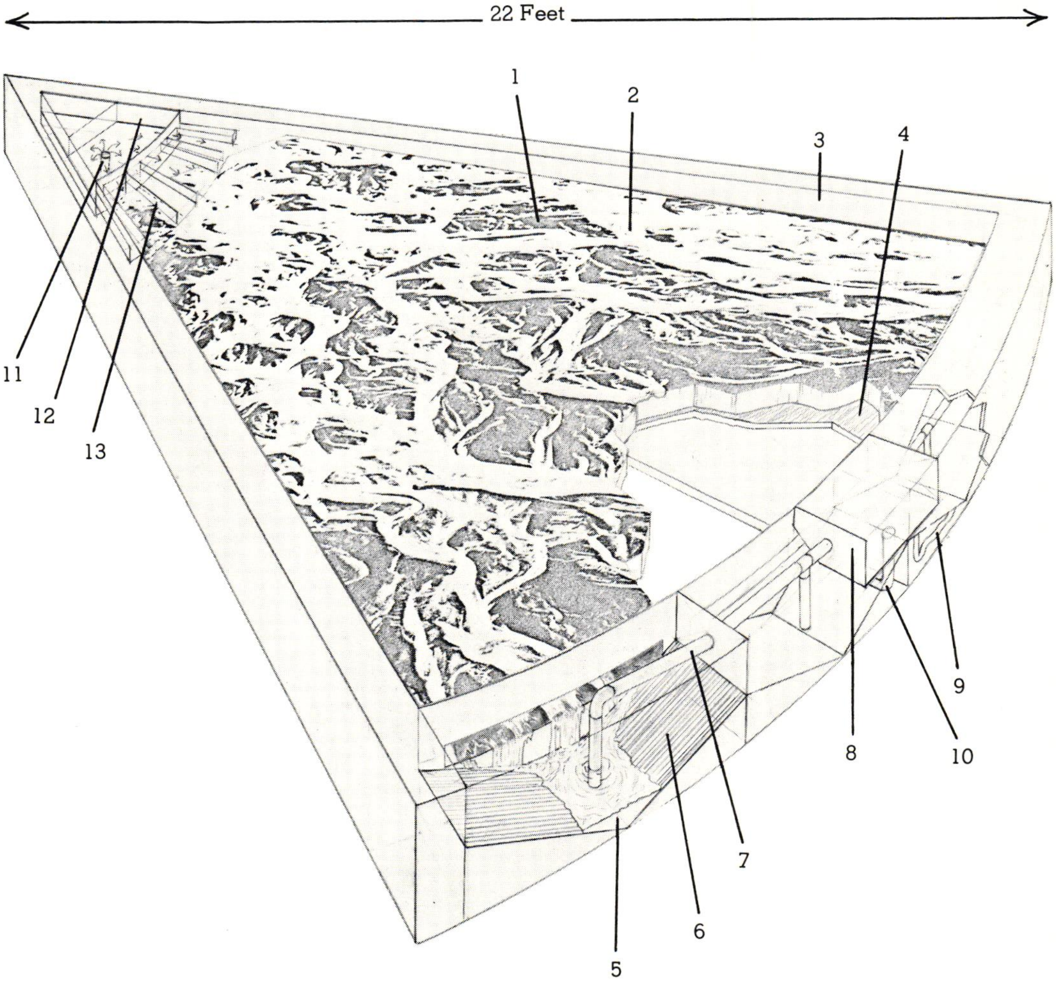
Alluvial Fan: A Water and Sand Sculpture by Andrew Leicester

Rex Moser

Andrew Leicester's work is about landscape that constantly changes, transforming itself by means of growth and erosion. His work for this exhibition is based on a natural process that creates river deltas: when two moving water bodies meet, the less active drops its load of sediment creating a delta, or more accurately, an alluvial fan, and water flowing across this soft surface leaves rivulet patterns as evidence of its ever-changing journey. *Alluvial Fan* is an isosceles triangle whose two long sides are 22 feet, containing strata of colored sand. Recirculated water and sand emanate from its apex to flow across the surface, leaving a complex network bordered by the redistributed sand. The result of this process will resemble the graphic pattern evident in aerial photographs of great river systems.

Leicester's work derives from the earth art movement of the last decade. It does not violate the landscape but becomes an organic part of it. His art reflects a long time interest in engineering and geology. Their visual interaction is the premise of an earlier work, *Minnesota Highway Project* (1974) which is visible along a 30-mile stretch of Highway 52 northeast of Rochester. It consists of six monumental graphic marks that appear to change their configurations on the landscape as the viewer drives by. These directionals, constructed with the aid of surveying equipment, contrast with the rolling hills on which they are sited and the observer's first view of them tends to confuse his perception of the slopes. As the motorist drives past, the hills reclaim their contours, and landscape and man-made mark become one.

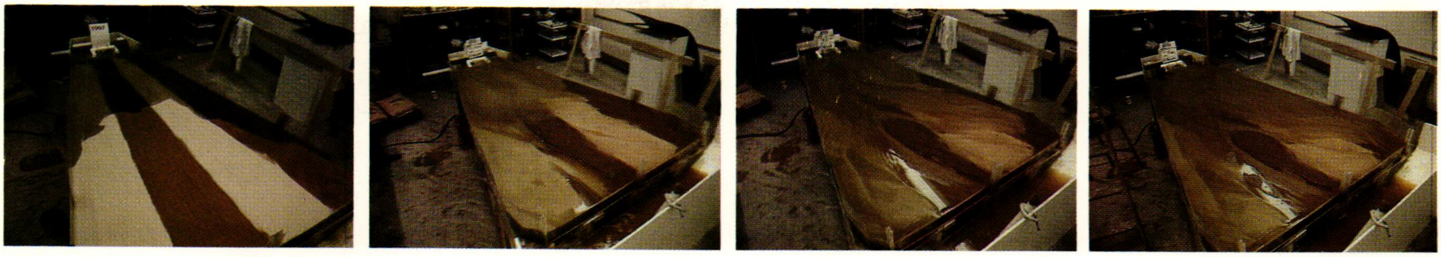
In *Alluvial Fan* Leicester continues his use of natural processes and artificial controls in forming a sculpture. He is directing the outcome of an unpredictable event or, in his words, "choreographing landscape." By adjusting the size of the sluice gate and altering the current of water, Leicester affects the result. Water is the modeling agent, but the artist still governs the composition of his work.



Andrew Leicester
Alluvial Fan
Courtesy: the artist

This diagram describes the various elements used in the work.

1 Mississippi sediment
2 Water
3 Bed structure
4 Wax sealant
5 Mixture of sediment & slurry
6 Reservoir (4 in all)
7 Suction pipe to pump
8 Pump
9 External airline
10 Return pipe to head
11 Head outlet
12 Head reservoir
13 Channel initiators



photographs by **Andrew Leicester**

Four time-lapse views of a working model for *Alluvial Fan* are shown here (top).

Aerial views are used by the artist as research material. These shots illustrate fundamental properties of the natural erosion process and demonstrate various man-made irrigation systems that impose a geometric order on the landscape.

Mississippi Rolls: A Film by Louis Hock

Melinda Ward

The Mississippi River with its infinite abstract motion and its complex network of commercial transportation is a natural subject for the modern filmmaker whose medium is best equipped to synthesize the textural and kinetic aspects of the river. The occasion of *The River: Images of the Mississippi* has provided Walker Art Center with the unique opportunity of bringing together the sensibility of a contemporary filmmaker, Louis Hock, and the visual opportunities of the river. Hock has chosen to make a film installation piece, titled *Mississippi Rolls,* to be shown in the Walker galleries.

The most significant trend of the last decade in American independent filmmaking is that which has been variously labeled and described as structural, minimal and/or self-reflexive. These terms refer to films which explore and call attention to 1) the essential properties of the medium such as the flat surface of the screen, 2) the filmstrip as a series of still images that, when projected, produce the illusion of movement as the filmstrip passes in front of an intermittent source of light, 3) the activity of the granular surface of the emulsion as image, and 4) the temporal and spatial relationships between sound and image.

Owing to the anti-illusionistic nature of these works, the screen ceases to serve as a window on the world. The space in which the film is projected and seen takes on new significance, becoming part of the film viewing experience. In the past few years, several filmmakers have been making film installation works for gallery spaces. (Two of these works, Michael Snow's *Two Sides to Every Story* and Paul Sharits's *Synchronousoundtracks,* were part of the Art Center's 1974 *Projected Images* exhibition.) One effect of the film installation is a shift in the viewer's role from passive observer/voyeur to active participant in the generative process. The viewer is free to move around and through the installation and to select vantage point(s), parts of the work (image, projector, light beam, walls, etc.) and sequence in viewing the work. The viewer also controls the amount of time spent in looking at the work—the space becomes sculptural rather than theatrical.

Louis Hock began making films in the late 60s at a time when conventional notions of narrative, illusionistic cinema had long been dispensed with by independent filmmakers and the move into gallery spaces was underway. *Mississippi Rolls,* Hock's first film installation piece, is a vertical serial triptych. At one end of a long narrow room, three projectors are stacked so that a single filmstrip passes through the gate of each projector at four-second intervals. The image, projected on a wall at the other end of the room, appears to be that of a double-sprocketed filmstrip consisting of three successive frames. The images that we see within the frames are details of the Mississippi River shot in and around the lock at St. Anthony Falls.

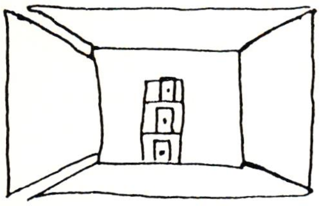
In all of Hock's previous work, he has been interested in the relationship between film time and real time. In *Studies in Chronovision* (1975), he situated his camera in a static position and recorded, a single frame at a time with intervals regulated by personal choice, light and exposure on various surfaces.

In another film, *Silent Reversal* (1973), Hock used a horizontally split frame in order to render simultaneously two separate temporal images. For *Mississippi Rolls,* he has combined the techniques and processes of *Studies in Chronovision* and *Silent Reversal* and added a third temporal dimension. He says, "The phenomenon of film, as with other continuum arts, is usually limited to a single perceptual point in its temporal existence (the one frame in the projector gate, the point of touch with a phonograph needle, the immediate sound perceived from the playing orchestra). *Mississippi Rolls* exposes three vantage points for perception. An extrapolation of this concept to a spatial from a temporal context is that of a single dimension expanded to three. The viewer's comparison of kinetic evolution from one image to another augments the aesthetic cognition of the individual frames as well as the projected image as a whole."

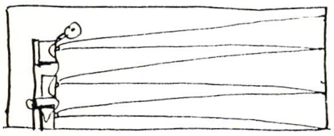
In *Mississippi Rolls,* Hock has brought together aspects of the Mississippi River systems (the locks emptying and filling, the barges moving up and down the river, the speed, depth and direction of the water, and the weather) and the systems of film (filmstrip, camera, projection, exposure, editing) so that our perception of the everyday events that occur along the river is dramatically increased.

Louis Hock
Mississippi Rolls

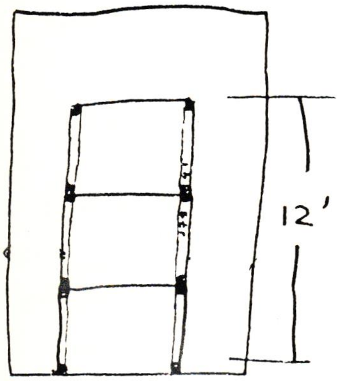
The sketches below, by the artist, describe the installation of the film projectors in the Art Center gallery. The stills (right) are put together as they will be seen. These frames have captured the qualities of form and light on the river that fascinated Hock this past summer as he was filming.



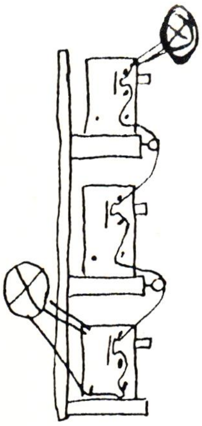
End view



Side view



End view enlarged



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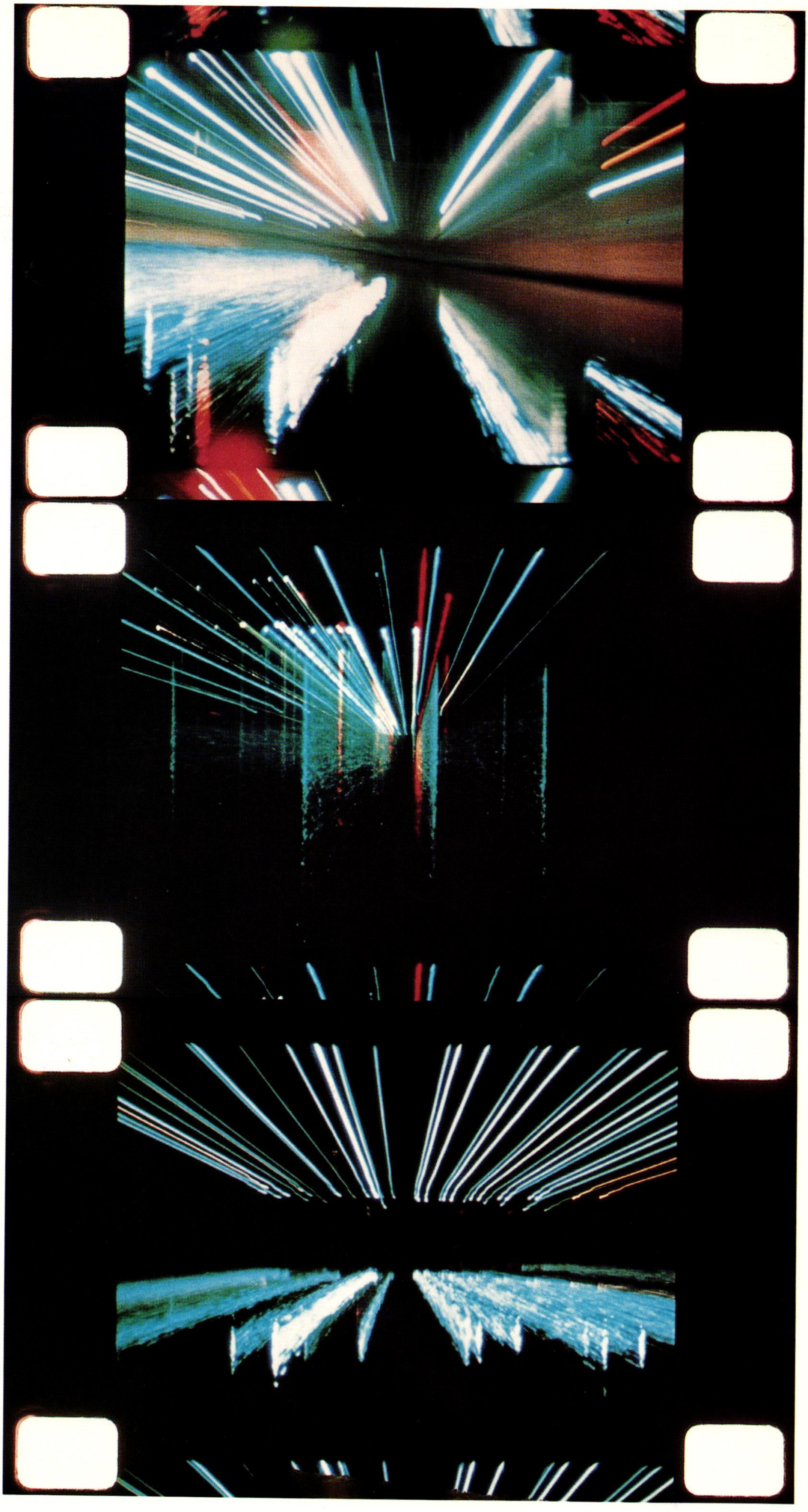

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Erratum: In DQ 100, Mr. Charles Gwathmey's name was incorrectly given as Richard Gwathmey.

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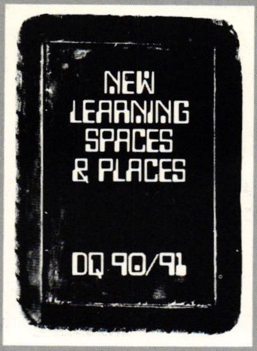
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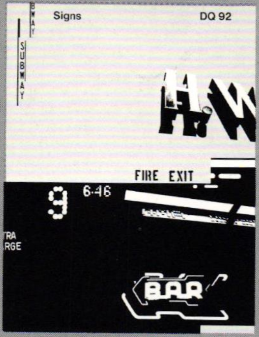
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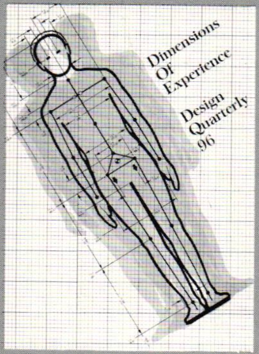
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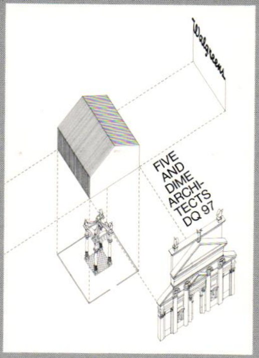
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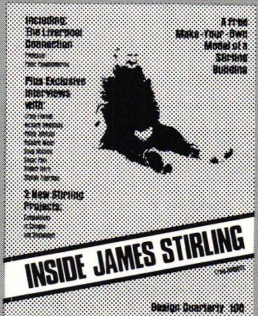
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89	Sottsass/Superstudio: Mindscapes
90-91	New Learning Spaces & Places
92	Signs
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96	Dimensions of Experience
97	Five and Dime Architects
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Walker Art Center Staff

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Donald C. Borrman, Administrator
Dean Swanson, Chief Curator
Suzanne Weil, Coordinator, Performing Arts
Mildred S. Friedman, Editor, *Design Quarterly*
Melinda Ward, Coordinator, Film
Linda Nyvall, Coordinator, Education
James E. Johnson, Graphic Designer
Carolyn De Cato, Registrar
Catherine Lynch, Coordinator, Membership and Public Information
Peter Georgas, Public Information
Eric Sutherland, Photographer
Miriam Swenson, Office Manager
Katherine Mack, Manager, Center Book Shop
Walter Chapman, Jr., Building Manager

Joan Benson, Administrative Secretary
James Berquist, Maintenance
Gwen Bitz, Assistant to the Registrar
Douglas Caulk, Exhibition Technician
Carolyn Farndell, Mail Clerk
Terry Fisher, Exhibition Technician
Wallace Gaston, Maintenance
Charles Helm, Audio/Visual Technician
Wayne Henrikson, Graphic Design Assistant
Steven Jensen, Chief Guard
Eldor Johnson, Exhibition Technician
Surujny Kotila, Chief Guard
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Walker Art Center Interns and Fellows

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Annette Carlozzi, NEH Intern
Michael R. Klein, Rockefeller Foundation Fellow
Lisa Lyons, Rockefeller Foundation Fellow
Rex Moser, Rockefeller Foundation Fellow
Patricia O'Brien, NEA Intern
Lawrence Shopmaker, NEH Intern